THE physical therapy REVIEW

35th Annual Conference
American Physical Therapy Association
Olympic Hotel Seattle, Washington
June 15-20, 1958

Methods of Muscle Training: The Influence of Pacing — HELLEBRANDT and HOUTZ

A Cerebral Palsied Infant Under Treatment — BLUMENTHAL and BANHAM

An Experimental Below-the-Knee Prosthesis — HOOG

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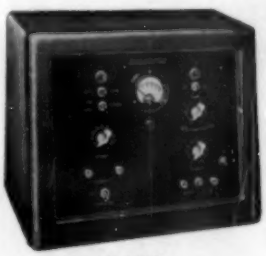

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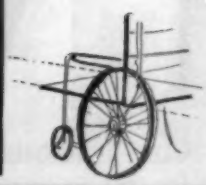

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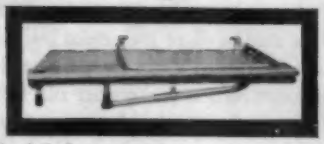

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IN THIS ISSUE

Methods of Muscle Training: The Influence of Pacing —F. A. Hellebrandt, M.D., and S. J. Houtz . . . 319

A Cerebral Palsied Infant Under Treatment—Edna M. Blumenthal and Katharine M. Banham, Ph.D. . . . 323

An Experimental Below-the-Knee Prosthesis—Joseph Hoog 326

Remarks for the Good of the Order—John C. Allen, M.D. 341

Regular Features

Case Reports

Hysterical Paralysis, Diagnosed as Poliomyelitis—Joseph B. Rogoff, M.D., and Murray Chrystal 331

Use of Cold Applications in the Management of Spasticity — Sarah W. Bassett and Barbara M. Lake 333

Suggestions from the Field

Hip and Back Stabilizing Safety Unit for Wheel Chair Patients—Vincent J. Barbato 335

A Supportive Apparatus for Patients Standing in Hospital and at Home—Sidney Bedell 337

Index to Current Literature 340

Editorial 342

Conference 1958 344

Association News . . . 360

Student Column 368

Physical Therapy Programs 369

Abstracts 371

Book Reviews 377

Our Book Reviewers for May 379

What's New 380

Short Term Courses . . 316

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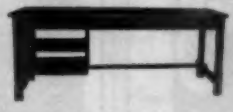
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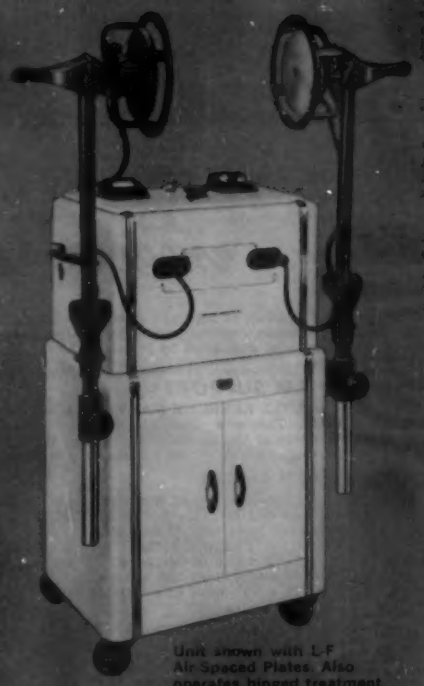

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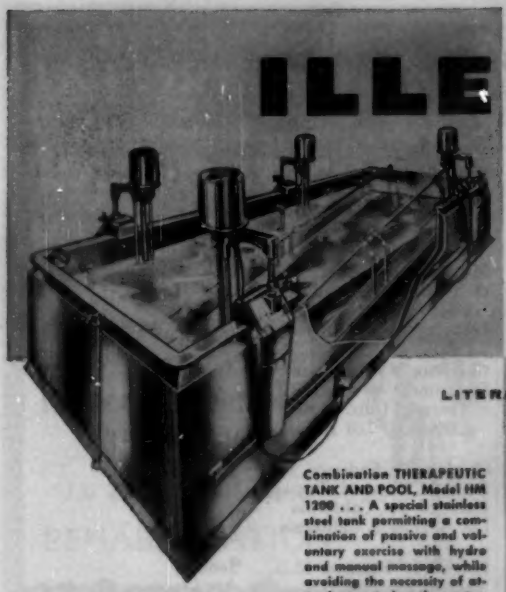

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Official Publication of The American Physical Therapy Association

Methods of Muscle Training: The Influence of Pacing

F. A. Hellebrandt, M.D., and S. J. Houtz, M.S.

Rate of working, or power, is the critical variable in training programs designed to increase the performance of muscle. The amount of work done per unit of time may be augmented either by increasing load or speed. More attention has been given to the influence of progressive increase in the resistance against which muscles are made to contract than systematic upgrading of the rate, rhythm, or speed of movement. For want of a better term the latter may be called pacing.

By proper adjustment of speed and resistance the same amount of work may be done by lifting a heavy load slowly as by lifting a light load more rapidly. The two variables are inversely related and there is an optimum speed for exercise of every severity. Unequivocal evidence already exists to prove that the functional capacity of muscle increases when the cadence of a prescribed exercise is kept constant and the resistance is systematically raised.[1, 2] We now postulate that progressive pacing should be just as effective a device for overloading the neuromuscular machine as a progressive increase in resistance. The purpose of this note is to present an experimental demonstration of the validity of that hypothesis.

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The work reported was done in the Division of Clinical Research, Baruch Center of Physical Medicine, Medical College of Virginia, Richmond, Virginia, and in the Department of Physical Medicine and Rehabilitation, Research and Educational Hospitals of the University of Illinois, Chicago, Illinois. The technical assistance of Luz Maria Lopetegui is gratefully acknowledged.

Methods

The subjects of the investigation were six normal adult females well trained in laboratory procedure and accustomed to the rigors of experimental exercise. All training was done on the radio-ulnar ergograph. This device has been described in detail elsewhere.[3] Only supination was studied. Observations were made on both the right and left side. In toto 187 training experiments and 60 limit day procedures were performed. The first series of observations, made at the Medical College of Virginia, consisted of 10 training periods ranging from 7 to 10 days in duration. Subsequently, a confirmatory series of 8 additional periods of training, all 10 days in duration, was obtained at Illinois.

A standard load limit day procedure was used to find the optimum resistance for short bouts of repetitive contraction executed at a natural unhurried rhythm. The audio-visual metronome was set arbitrarily at 100. Repetitive shortening and lengthening contractions were performed as a 2-count exercise without pausing at either the beginning or end of the movement cycle. Each bout was composed of 25 lifts. It was therefore performed in 30 seconds. Every exercise period was followed by an equivalent period of rest. The load was increased progressively on each

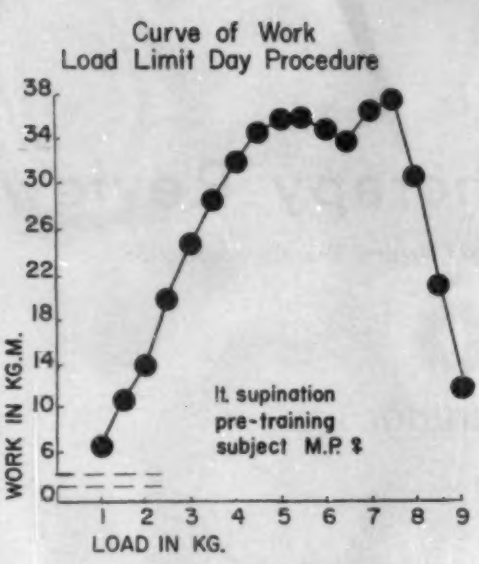

Figure 1. The influence of progressive increase in load on work output. The subject was exceptionally strong. Seven kg. was selected as a good approximation of the optimal load for 25 repetitive contractions performed in 30 sec.

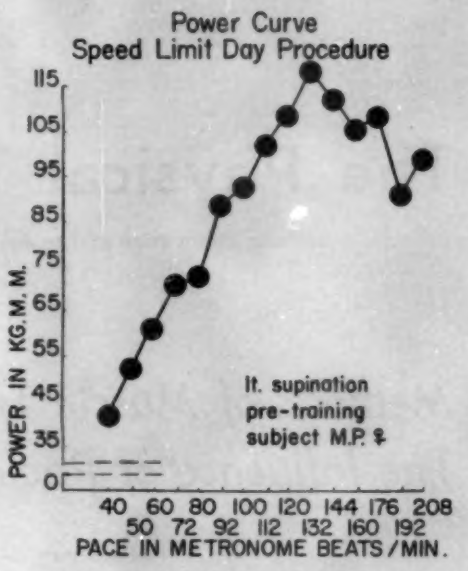

Figure 2. The influence of progressive increase in metronome pacing on the rate of working or power. One hundred thirty-two beats per min. is the optimum tempo for the conditions of load and exercise duration imposed.

successive bout until it was so heavy that the requisite number of lifts could no longer be made in the prescribed rhythm. The optimum load was selected from inspection of the resultant curve of work (Fig. 1).

The speed of exercise was increased on successive bouts by varying the metronome setting progressively from 40 to 208 beats per minute. Load, number of lifts per bout, and the rest pause between bouts were held constant. Not all subjects could lift the optimal load repetitively 25 times at the highest pace. The cadence range is related also to the muscle group under training. Alternate extension and flexion of the knee joint, for example, could not be executed through full range at the comparatively high tempos possible for supination and pronation.

Inspection of speed limit day performance, computed and graphed in power rather than work units (Fig. 2) is sufficient to indicate the approximate cadence required to overload the machine when operating against the previously established optimal resistance. Speeds below the peak at which maximum power is developed never strain the functional capacity of the muscle group under study and hence are classifiable as suitable for underload exercise. Pacing in excess of the optimum introduces degrees of stress which vary directly with the tempo. Training was commenced usually at a pace faster than optimum but short of speeds so rapid that breakdown occurs in less than 25 repetitive contractions, either because of fatigue or incoordination. Judgment is required to select the degree of overloading which will impose the maximum stress tolerated and yet permit completion of a standard exercise dosage, i.e., 10 bouts of 25 lifts each, performed daily for purposes of training. The pace set for each practice session is progressively upgraded to match the increase in functional capacity.

The effects of training may be measured in three ways. Knowing the total work done in 10 bouts of 25 repetitive contractions each and the duration of the exercise, the rate of working (i.e. power) may be computed. Graphed against practice days this yields a typical training curve (Fig. 3).

As already indicated load and speed limit day procedures are necessary preliminary steps for the determination of optimum resistance and the selection of a rate of movement fast enough to strain the limits of capacity. They can be repeated

at the end of training. When power and/or work are graphed against load or speed, before and after training, gains in strength and endurance may be readily visualized from the resultant curves (Fig. 4 and Fig 5).

RESULTS

The curves illustrating the three criteria in terms of which progress may be measured summarize the primary findings of this experimental demonstration of the efficacy of pacing as a muscle training device. Speed is just as effective

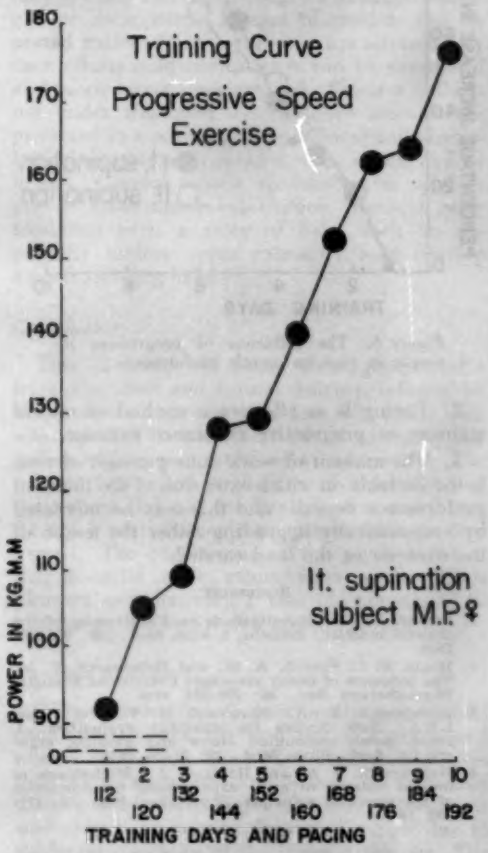

Figure 3. The influence on functional capacity of lifting the same load for the same number of times at a faster and faster tempo. Because prolonged repetitive supination performed at a rapid pace is an unfamiliar type of activity, rarely used, especially by the left upper extremity, training commenced in the optimal speed range. Overloading by pacing did not occur until the fourth day.

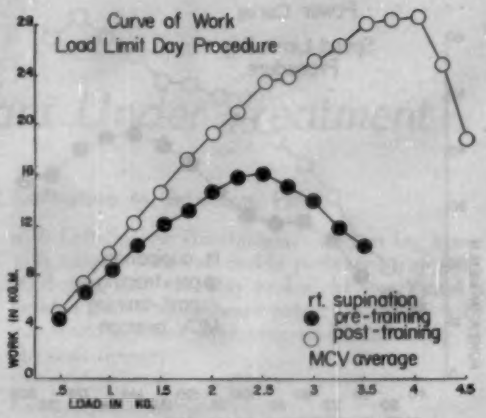

Figure 4. The influence of progresive increase in load on work output before and after speed training. Pacing alone increased strength and endurance. Heavier loads could be lifted repetitively through a greater range of movement, increasing the kg.m. of work done per bout.

as resistance for overloading the neuromuscular machine. If anything, pacing is better. The training curves of both series of experiments, those performed at the Medical College of Virginia and those repeated at Illinois, have been averaged and are presented in figure 6. The functional capacity of the supinators more than doubled in 10 days of training. The improvement on the preferred side reached 150 per cent. This surpasses the gains reported in our previous study of the overload principle and the mechanisms of muscle training in man.[4] Those observations were limited to progressive resistance exercise.

The relative constancy of work output over a wide range of speeds was an unexpected incidental finding. Although the power developed during successive bouts of the speed limit day procedure rose sharply, as illustrated in figure 2, the kilogram-meters of work done in 25 repetitive lifts remained little affected until the tempo became so fast that the load could no longer be moved through full range. Thus the margin of safety under which the neuromuscular system operates appears to be broader for speed than for load, at least under the conditions of our experiments. The optimum load could be carried through full range over a surprisingly extended variation in speed. This was not true when the pace was held constant and the resistance varied.

Another complicating factor in the pacing experiments was the seeming imbalance in the

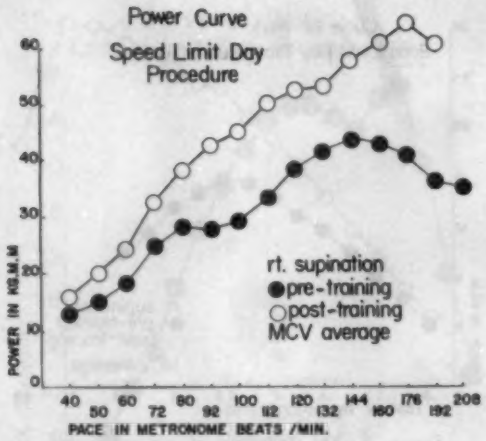

Figure 5. The influence of progressive increase in pace on power before and after speed training.

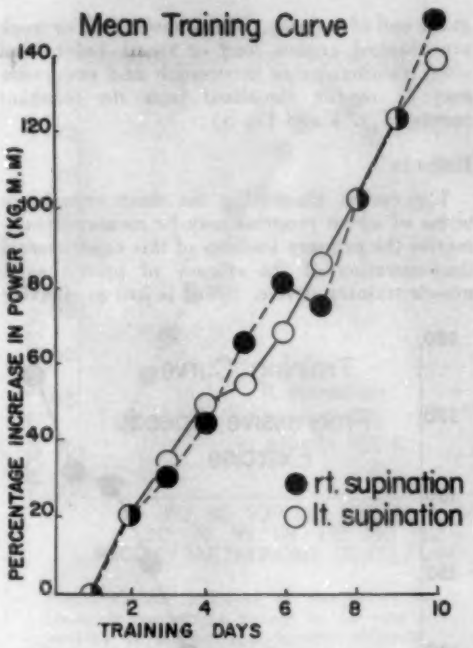

Figure 6. The influence of progressive increase in pace on muscle performance.

speed at which the load could be raised (against gravity) on supination and lowered (with gravity) on pronation. Paradoxically the latter was more difficult. The reason for this may reside in the fact that the radio-ulnar joint was returned to the starting position after each repetitive lift by a controlled lengthening contraction of the supinators, and not by a shortening contraction of the pronators. This problem warrants further study.

SUMMARY

Since the amount of work done per unit time may be augmented either by increasing load or speed, it was postulated that progressive pacing should be as effective a training device as progressive increase in resistance. Using ergographic technics already standardized in the study of progressive resistance exercise, two series of brief training experiments were performed on six normal adult women. The evidence presented supports the following conclusions:

1. Pacing, which increases progressively, overloads the neuromuscular system and augments functional capacity.

2. Pacing is as effective a method of muscle training as progressive resistance exercise.

3. The amount of work done per unit of time is the variable on which extension of the limits of performance depends and this may be increased by systematically upgrading either the tempo of the exercise or the load carried.

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A Cerebral Palsied Infant Under Treatment

Edna M. Blumenthal, B.S., and Katharine M. Banham, Ph.D.

The purpose of this paper is to point out the effects of early physical therapy in the preambulatory cerebral palsied patient. In the young infant only gradual and minute degrees of improvement can be anticipated. Ranges of motion and repeated correct joint positioning are stressed. By such efforts mild contractures can be eliminated and more severe ones avoided. When a child is not under treatment overstretched muscles are protected in a position of mechanical and physiological advantage by molded casts, splints and/or braces. Careful muscle reeducation is used to prevent gross muscle substitution. Through early treatment even a retarded baby with an apparently useless upper extremity may develop a good assisting hand.

Case history

This 12 month old female child, product of a term pregnancy and normal delivery, referred by her pediatrician, was seen Jan. 13, 1957. She was reported to have held her head up at one month and to have sat alone at six months. The parents first noted at the age of 3 months that the patient did not use her left arm and hand. At age 1 year she could not stand, walk, or feed herself. The conclusions of the psychologist at this hospital after examination were: "This pleasant and charming 1 year old appears to be average in her social and mental growth."

Physical findings

This well developed, emotionally secure child could not use the left arm but had grasp and release in the left hand. On attempted passive internal rotation, forward flexion, or abduction there was blocking at the shoulder. Resistance was present on passive flexion of elbow due to moderate spasticity of the elbow extensors. The thumb was held in the palm. The first metacarpophalangeal joint tended to sublux. The left lower extremity was in equino valgus with spastic peroneals. DIAGNOSIS: Infantile Cerebral Palsy with Left Spastic Hemiplegia. A short leg brace with outside bar and inside pullover strap with 90 degree stop (for day and night wear) and a molded thumb splint were prescribed along with left tendo achilles stretching and hand work in physical therapy.

First physical therapy visit

This friendly and cooperative child, whose mother was tense and apprehensive, was started on a very simple daily home program. The mother was taught to apply gentle "relaxed stretching" to the thumb (very slow passive movement to achieve relaxation of tight adductors and flexors of thumb) with emphasis on extension-abduction. To motivate the baby and hold her attention it was suggested to the mother that she kiss the baby's palm each time the hand was fully opened. Since rapport with mother, child, and therapist was being established no formal exercises were started.

Second week

A less tense mother volunteered the information, "She opens her hand more than last week and keeps thumb out of palm oftener." The mother had made a game out of the relaxed stretching exercise and the baby chortled as the mother demonstrated the "treatment." Further investigation revealed that the child, if held by the right hand, would attempt to walk. She would not creep because the left upper extremity could not support her weight. Left hand was clutched. With the left elbow supported and the hand opened and placed by the physical therapist the child attempted to creep. The mother was instructed to encourage the baby to reach overhead for her favorite toys.

Third week

It was noted that the child brought the left thumb out of her palm many times. Good rapport was now well established and a formal program was begun. The mother was instructed and given written exercises with songs for forward

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flexion, extension, abduction, adduction, and rotation of left shoulder. In addition, slow relaxed stretching for tight tendo achilles was started. These exercises were to be done once a day, six days a week. With elbow supported and fingers opened by the therapist the baby moved forward with normal movements in a four-point creeping position. She was fascinated when the thumb splint was molded in occupational therapy.

Fifth week

The mother stated that the child now kept her thumb out of her palm most of the time. During her treatment period she opened her hand voluntarily with thumb extended. The thumb splint, molded to maintain abduction and opposition, was fitted. The splint was worn only at night as the child used her hand during the day.

Seventh week

The child could now support her own weight in the four-point kneeling position without assistance to left elbow. Thumb to finger opposition (with song) was started by the physical therapist (the mother observed execution of this exercise for two sessions before adding it to her program). There was no resistance of the thumb adductors to passive exercise. The baby, wearing short leg brace and with slight assistance, was beginning to walk.

Eighth week

Mother stated that child was pulling up in her play pen with *both hands* and would let go and walk across the pen unaided. She would walk from one piece of furniture to another. With her right hand held she would run across the room but if the left hand was held she walked with caution. The thumb splint was adjusted. Passive exercises for supination and pronation of forearm and extension and flexion of wrist were started by the physical therapist but not added to the home program.

Ninth-tenth weeks

The child, according to the mother, frequently used a four-point kneeling position at home and pulled up at a chair with her left arm. At the hospital she reached with left upper extremity for objects on a high chair when encouraged to do so, and grasped a lollipop (awkwardly) overhead. With short leg brace the child stood alone with feet and knees in good alinement and, by following a wall, walked unassisted.

Eleventh-thirteenth weeks

The child, at this time, walked independently with the left leg brace. However, it was noted when barefooted she still pronated the left ankle. The patient was ill and kept only one appointment in three weeks. She was very fussy. The mother stated that the baby screamed at night and bit and pulled on the thumb splint, but when splint was removed she slept well.

Fourteenth week

Seen in diagnostic clinic. A soft leather thumb splint was ordered and the comment was made that this child had a good gait for a 15 month old. Outpatient treatments were re-ordered.

Fifteenth week

Mother stated child could now support her weight on left arm, place right foot on the floor, and come to a standing position unassisted. This was demonstrated at the hospital. It was obvious that both mother and child were ill and treatment was cancelled.

Sixteenth-seventeenth weeks

The child had had immunizations and was cutting four teeth which necessitated temporary discontinuance of outpatient treatments. The mother continued treatment at home as she insisted that the child was cooperating perfectly in the home environment.

Twenty-sixth–twenty-seventh weeks

The child returned for treatment after a two month summer holiday. She walked with an excellent gait and ran without difficulty, wearing left leg brace. The mother stated that the child now places her fully opened left hand on her high chair tray when eating. At this time she demonstrated a fully opened left hand when creeping. She was as happy and inquisitive as on her initial treatment visit. The therapist watched the mother give the exercises and made no changes as reestablishing rapport was considered of more vital importance. Exercises were well demonstrated by the mother. The child again worked well the next week. The physical therapist helped dress the child and on departure the baby waved good-bye with her left upper extremity.

Twenty-eighth week

On her most recent visit the mother stated that the child opened her fingers more frequently and picked objects up with left hand, but had a weak grasp. It was noted that her thumb stayed out of the palm during most of the treatment. In creeping the child had to be reminded to open her left hand. She needed assistance to do this particularly when she crept rapidly. Using her short leg brace she walked and ran without stumbling or falling. Child was in a gay mood and the therapist resumed the exercises which were started in July. These will be added to the mother's home program after the child has become accustomed to them in her hospital visits.

SUMMARY

It is obvious that maturation played a definite role in this young child's physical development; however, some important points should be stressed:

1. Limitation of motion on passive internal rotation, forward flexion and abduction of shoulder had been materially reduced.
2. Resistance to passive elbow flexion was also materially reduced.
3. Within three weeks after initial treatment child brought thumb out of palm many times.
4. Seven weeks after initial treatment child supported weight on left upper extremity in four-point kneeling position.
5. Nine weeks after initial treatment child reached overhead with left upper extremity and grasped (awkwardly) lollipop.
6. Fifteen weeks after first treatment child could get up from sitting position on the floor using left upper extremity to support her weight.
7. A rest period from hospital treatment, due to illness, had no adverse effects. The child walked and ran independently wearing her left leg brace, had no marked contractures and, according to the mother, was beginning to pick things up with her left hand. She was happy and worked well.

CONCLUSION

It is felt by this therapist that early physical therapy in the cerebral palsied infant prevents contractures, promotes psychological as well as physical awareness of correct joint position and motion, and prepares the extremity for voluntary functional use as the infant matures. The use of casts, splints and/or braces to maintain normal joint position removes already involved muscles from an overstretched condition and so reduces abnormal stresses and strains on forming bones.

The fact that the child has learned to modify movements as a result of treatment procedures offers hope that the impairment of form sense and two-point discrimination, so frequently found in older spastic hemiplegics, will be considerably reduced by early treatment of the cerebral palsied infant.

Psychological Aspects

Following is a brief summary of psychological benefits which were noted during observation of this case and further benefits which might result from the rehabilitation program for cerebral palsied children begun within the first or second year of life.

BENEFITS FOR THE PARENT

During treatment the mother's attitude towards the child's handicap was a constantly reinforced hopeful one. She probably identified herself to some extent with the child and she experienced pleasure from each step in her child's control of movements.

The regular program of exercises brought the mother and child closer together in affectionate attachment, to the mutual satisfaction of both.

Weekly visits to the hospital to report progress and give the child exercises under supervision helped the mother to keep actively cooperative in the rehabilitation program. She received encouragement from the therapist which increased her self confidence and motivated her to continue the program prescribed.

Keeping the child at home during the outpatient treatment period, with the thought of possibly avoiding the necessity of hospitalization for the child later, was comforting to the mother and father alike.

BENEFITS FOR THE CHILD

The gratifying rewards of the mother's personal attention during the exercises, the rhythmic tunes that she sang to accompany the movements, and the caresses received on their completion apparently made the rehabilitation process an enjoyable one for the child. Rewarding experiences of this kind are likely to facilitate the learning of all behaviors, including social cooperation, active exploration and use of limbs, vocalization and the development of language.

The early use of specific muscle groups, for example those used in grasping or lifting objects, would facilitate the child's general mental development. These simple actions are the raw

material required for the later development of specific skills, such as dressing and undressing, writing, or typing.

The rhythmic exercises and the smiling, friendly attention of the physical therapist in the hospital played a positive role in the child's social development and adjustment. They provided happy associations with the hospital and at the same time reinforced the child's attention to specific movements that she needed to learn to make and control.

The regular repetition of the rehabilitation exercises, moreover, may have the effect of increasing the child's sensitivity to movement and of developing the kinesthetic sensations and perception necessary for voluntary control of movement. Laboratory studies showing the summation effect of subliminal stimuli in the sensory areas of vision and hearing suggest that repetition of barely conscious, passive movements may help to increase a child's awareness of those movements.

It would appear that much valuable time may be wasted if rehabilitation is delayed until the child is able to cooperate voluntarily in the exercises, say at the age of 3 or 4 years. Learning will be harder after spasticity has become habitual and taken for granted. A 4 year old child with cerebral palsy might have been able to gain voluntary control of his movements at an earlier age if he had been helped by passive exercises to develop a sense of movement.

A child's general mental ability grows with his skill in controlling all kinds of movements, including those involved in speech. Delay in the development of motor skills interferes with every phase of psychological development, in intelligent behavior, emotional expression and control, language, and thought. Similarly, absence of loving care and attention has been shown to warp a child's personality, whereas the presence of kindly personal attention helps a child to develop into an alert, happy, socially outgoing youngster. It seems likely that the rehabilitation program for very young children with cerebral palsy, through its beneficial effect on the growth of their total personalities, could be of lasting significance throughout their lives.

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An Experimental Below-the-Knee Prosthesis

Josef Hoog, M.A.

Modern rehabilitation of the amputee requires active postoperative care including training with a temporary prosthesis beginning early in the postoperative phase. By this means, contractures are avoided and the patient is able to use his permanent prosthesis as soon as it is provided.

Temporary protheses for training the amputee have been constructed from many different materials. Commonly used are plaster, metal struts, and a wooden or metal peg covered with a rubber crutch tip. Thompson [1] reports the use of a heavy cardboard attached to a wooden stick. In the case of the below-knee amputee, an ankle joint and a foot piece are not usually included. Most, if not all, of the below-knee training protheses have been suspended by shoulder straps [1] or thigh straps.[2, 3] A training prosthesis incorporating an ankle joint and a foot piece and employing no suspensory device would be ideal for the below-knee amputee.

Dr. Murphy,[4] in a recent publication stated, "Compared to the more conventional prosthesis, the suction socket below-knee leg provides simplicity and convenience by avoidance of any thigh lacer, knee joints, or straps. Its trim appearance is especially welcome to women, and its freedom from mechanical joints minimizes projections under the clothing for both men and women."

The construction of an experimental training prosthesis for a below-knee amputee incorporating an ankle joint and a foot piece and employing no suspensory device was considered a chal-

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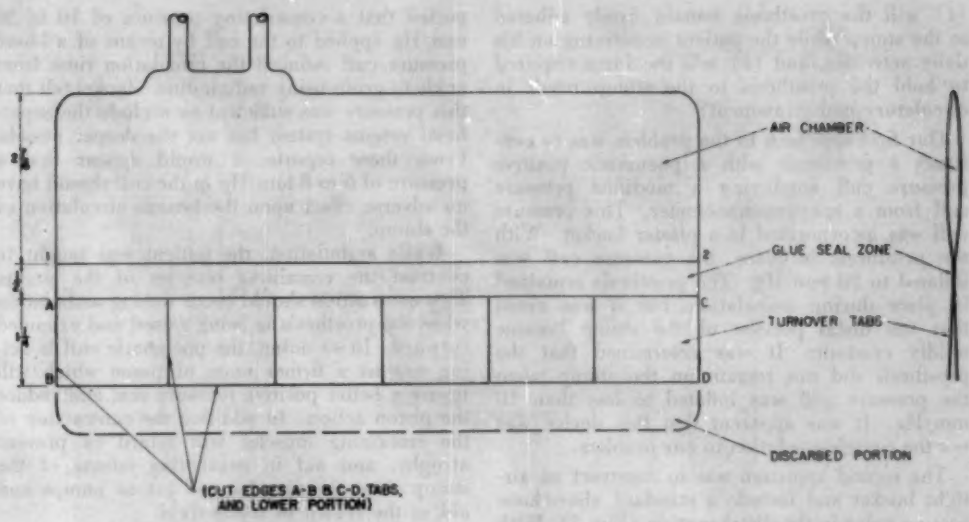

Figure 1. Sphygmomanometer Bladder

lenge by the Physical Therapy Unit in the winter of 1955. It was felt that the development of a simple inexpensive training prosthesis that could be constructed at the hospital would substantially speed up the rehabilitation process. Many temporary training devices have been constructed but few have been acceptable from a cosmetic point of view, and therefore, a major portion of their inherent usefulness was lost. The conventional below-knee prosthesis with its thigh corset and knee joints cannot be easily constructed in the average hospital. Our approach was to employ the remaining knee joint and suspend the prosthesis, if possible, from the stump without the use of straps. It was thought if such a device could be successfully worn the skills acquired on the training prosthesis could be easily transferred to the standard below-knee prosthesis. The stump will already be conditioned to weight-bearing and the addition of a thigh corset will relieve a considerable portion of the weight and result in a more normal gait.

The availability of written material on this subject leaves much to be desired. Actually the best source was the patent office.

Two patents were issued to inventors using the pneumatic cuff principle. Donaldson and Kespohl [5] of Duluth in 1897 employed a pneumatic cuff to prevent shock and injury to the stump. The pneumatic cuff was in addition to the thigh corset and knee joints. In 1911 Toles [6] of Stockton, California, patented an artificial limb which employed a single length rubber tubing coiled in the upper recessed portion of the bucket. The lower portion was made from canvas and rubber, and contained a valve to permit expulsion of air. Both of these inventions permitted a "bell clapper" action of the stump within the bucket, which is not desirable.

More recently Galdik [7] of San Francisco devised a soft socket below-knee prosthesis which is suspended from the stump by a soft rubber constriction midway within the bucket. The amputee must apply a cream to the stump before inserting it in the bucket. The cream and the narrow constriction within the bucket create an air tight seal to maintain suction. Blevens [8] of Louisville, has devised a below-knee prosthesis which depends on a cavity within the calf portion of the limb, and the expansion of the stump and a sponge rubber pad into this cavity to hold the artificial limb in position. The pad is held in place between two stump socks. The entire unit is forced into the bucket of the artificial limb.

It was our intention to combine the principle of the soft socket with the pneumatic cuff. Since the greater portion of the weight of the body would be borne on the sloping tibial condyles, the tibial tuberosity, and the head of the fibula, it was decided to cover the anterior half of the bucket with sponge rubber. The posterior half was covered with a pneumatic cuff modified from a sphygmomanometer apparatus. In undertaking this problem two fundamental problems arose:

(1) will the prosthesis remain firmly adhered to the stump while the patient is carrying on his daily activities, and (2) will the force required to hold the prosthesis to the stump result in circulatory embarrassment?

Our first approach to the problem was to construct a prosthesis with a pneumatic positive pressure cuff employing a modified pressure cuff from a sphygmomanometer. This pressure cuff was incorporated in a plaster bucket. With the prosthesis in place, the pressure cuff was inflated to 20 mm/Hg. The prosthesis remained in place during ambulation, but it was noted that the distal portion of the stump became mildly cyanotic. It was determined that the prosthesis did not remain on the stump when the pressure cuff was inflated to less than 10 mm/Hg. It was apparent that this device was not the complete solution to our problem.

The second approach was to construct an airtight bucket and include a standard above-knee suction valve in the distal portion (Fig. 2). With the valve removed, the stump was inserted into the bucket and when fully seated the pressure cuff was inflated. The valve was then closed creating an airtight bucket. The airtight seal was maintained anteriorly by the sponge rubber and posteriorly by the pressure cuff in contact with the posterior fleshy portion of the stump. On the first fitting, the patient wore the prosthesis for four hours during which time he engaged in various activities. There was no circulatory embarrassment to the stump demonstrated after four hours. It was determined that a minimum air pressure of between 6 and 8 mm/Hg was required to maintain the prosthesis on the stump. Using this minimum pressure in the cuff, the patient wore the prosthesis for periods ranging from 8 to 14 hours without inducing any apparent circulatory impairment. The patient was urged during these trials to carry on more than normal activities and to report any unusual sensations such as tingling, soreness, numbness, coldness, or cramping. The patient reported no feeling of discomfort and at no time did the prothesis fall from the stump.

Realizing that an artificial device of this type would be worn for long periods and could result in circulatory impairment of the stump if the pressure of the cuff were sufficiently great, it was necessary to consider the arterial and venous pressures in the skin of the stump. Landis [9] by direct puncture with microtubes found the average pressure at the arterial end of the skin capillary loops of the hand to be 32 mm/Hg, and 12 mm/Hg at the venous end. Zankel et al.[10] reported that a constricting pressure of 10 to 20 mm/Hg applied to the calf by means of a blood pressure cuff reduced the circulation time from ankle to groin using radioiodine. Zankel felt that this pressure was sufficient to occlude the superficial venous system but not the deeper vessels. From these reports, it would appear that a pressure of 6 to 8 mm/Hg in the cuff should have no adverse effect upon the venous circulation of the stump.

While ambulating, the patient was taught to contract the remaining muscles of the stump. This contraction should occur during ambulation when the prosthesis is being raised and extended forward. In so doing, the pneumatic cuff is acting against a firmer mass of tissue which will insure a better positive pressure seal and reduce the piston action. In addition the contraction of the remaining muscles will retard or prevent atrophy, and aid in preventing edema of the stump since the muscles will act as pumps and aid in the return of tissue fluid.

It was assumed that a negative pressure was created within the plaster bucket during walking. In order to validate this belief, a pressure gage was attached to the valve housing. The pressure reading, taken during the swing phase of walking, was found to be zero.

It was then decided to investigate the effects of a deflated cuff and an open valve, upon the prosthesis remaining attached to the stump. The limb fell from the stump in approximately two minutes in both instances.

CONSTRUCTION

Bucket

As previously stated the anterior half of the bucket is lined with sponge rubber and the posterior half is covered by the pneumatic cuff. The modifications required of a sphygmomanometer cuff are shown in figure 1. The tabs were initially left uncovered. Following the application of several layers of plaster, the tabs were then molded securely between the remaining layers of plaster. This is done to prevent the cuff from rolling up from the bottom.

The patient's knee was then flexed to an angle of 90 degrees and a plaster bandage was applied beginning at the proximal portion of the stump. The importance of knee flexion was: (1) to limit the height of the plaster bucket and thereby prevent excessive pressure in the popliteal space; (2) to insure that the knee will flex easily and comfortably to at least 90 degrees, and (3) to prevent excessive friction between the medial hamstrings and the upper edge of the bucket.

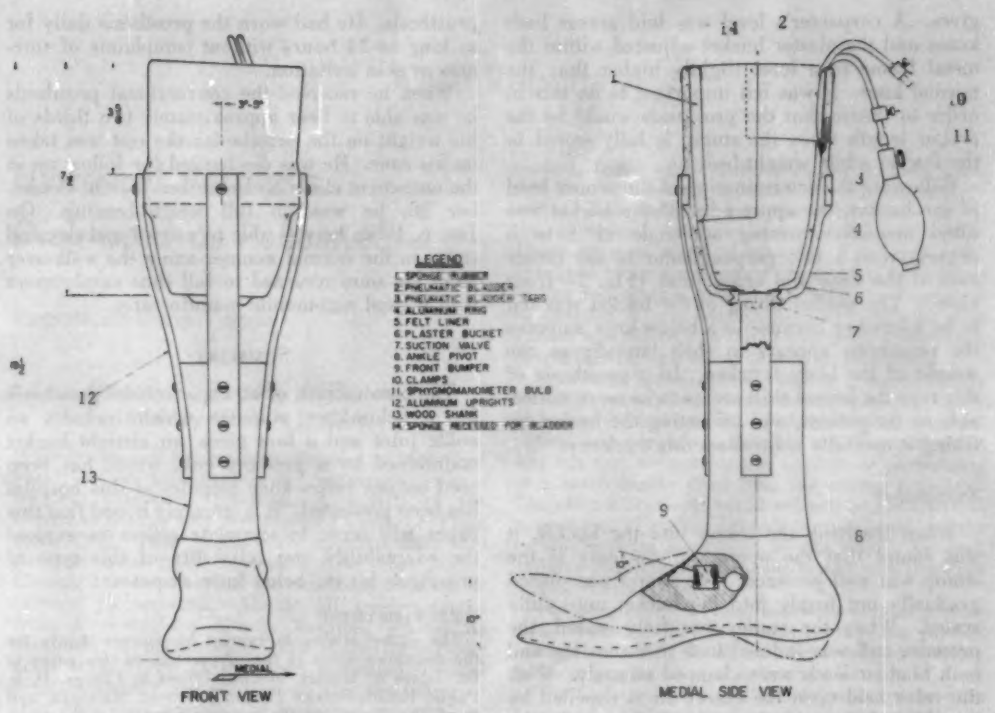

Figure 2.

A standard above-knee suction valve was then inserted into the distal end of the plaster bucket. A Vee was ground into the valve housing, figure 2, and narrow strips of plaster were wound around tightly until a plaster flare extending out ½ inch on all sides was formed. This was allowed to dry thoroughly. In the meantime, a hole approximately 1 inch in diameter was cut into the distal portion of the plaster bucket. The valve with its plaster flare was then applied over the hole and attached by plaster strips to the bucket.

Ankle joint

The usual prosthetic foot is alined so that it is in a slight equinus position. A 10 degree portion was cut from the anterior superior bumper stop in order to permit 5 to 10 degrees of dorsiflexion, figure 2. This was felt to be important because if the foot cannot dorsiflex to 5 or 10 degrees, and since the ankle mechanism cannot absorb the horizontal tibial rotation, there is a torsional force transmitted from the ankle joint to the stump proper. The strength of this force increases as the prosthesis passes through the vertical and on to the dorsiflexed position. This force, in addition to producing excessive friction about the stump, may be great enough to open the positive pressure seal and hence release the airtight seal. In the conventional limb, the thigh cuff and slippage between the stump and the bucket absorb this force although it may and often does cause pain about the bucket.[11, 12]

Metal frame

A metal frame was constructed from aluminum and bolted to the prosthesis. The circumference of the circular member was 1 inch larger than the stump measured at its largest point.

The plaster bucket was inserted into the metal frame to one-half its length and attached to the metal frame by means of plaster strips. Before this could be accomplished the proper height of the plaster bucket within the metal frame had to be determined. This was done by having the patient seated and both knees flexed to 90 de-

grees. A carpenter's level was laid across both knees and the plaster bucket adjusted within the metal frame to a level slightly higher than the normal knee. It was felt important to do this in order to insure that the prosthesis would be the proper length when the stump is fully seated in the bucket while weight-bearing.

Following the determination of the proper level of the bucket, the upper edge of the bucket was tilted medially forming an angle of 3 to 5 degrees with a line perpendicular to the center axis of the knee and ankle joint (Fig. 2—front view). The medial tilting of the bucket was felt to be necessary because in a below-knee amputee the prosthesis appears to shift laterally as the weight of the body is taken. In a prosthesis of this type the lateral shift seems to be more noticeable to the patient, and off-setting the bucket by tilting it medially neutralizes this tendency.

Suspension

When inserting the stump into the bucket, it was found that the operation was easy if the stump was well powered. The stump was placed gradually but firmly into the bucket until fully seated. When the stump was fully seated, the pressure cuff was inflated to 6 to 8 mm/Hg and both bladder leads were clamped securely. With the valve held open the excess air is expelled by a sudden downward thrust of the stump in the bucket. Just at the peak of the thrust the valve is released and snaps close.

CASE HISTORY

The experimental below-knee prosthesis was employed in the case of D. P. a 29 year old American seaman who sustained a right below-knee amputation as a result of a nonunion of the tibia because of chronic osteomyelitis.

The below-knee amputation was performed on Oct. 14, 1955. The stump measured 5 inches from the tibial plateau. The incision healed without incident.

The experimental prosthesis was completed in the afternoon of Dec. 8, 1955, and weighed 5 pounds without the shoe. The patient wore the experimental prosthesis until Dec. 16, 1955. On that date he received his conventional prosthesis.

On December 16, the patient was bearing up to two thirds of his body weight on the experimental prosthesis. He had worn the prosthesis daily for as long as 14 hours without complaints of soreness or skin irritation.

When he received the conventional prosthesis he was able to bear approximately two thirds of his weight on the prosthesis; the rest was taken on his cane. He was discharged for follow up in the outpatient clinic on December 16. On December 30, he was on full weight-bearing. On Jan. 6, 1956, he was able to ascend and descend stairs in the normal manner using the walk-over gait. He soon returned to full time employment with a local automobile manufacturer.

SUMMARY

The construction of an experimental prosthesis for a below-knee amputee which includes an ankle joint and a foot piece, an airtight bucket maintained by a pressure cuff, which has been used on one below-knee amputee at this hospital has been presented. It is sincerely hoped that this paper will serve to stimulate others to explore the adaptability and reliability of this type of prosthesis for the below-knee amputee.

ACKNOWLEDGEMENT

The author wishes to express his sincere thanks for the assistance given in the preparation of this paper to Dr. James A. Hunter, Medical Officer in Charge, U. S. Public Health Service Hospital, Detroit, Michigan, and to all the doctors on the Surgical Service for the many helpful suggestions they offered.

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Hysterical Paralysis, Diagnosed as Poliomyelitis

Report of Two Cases

Joseph B. Rogoff, M.D., and Murray Chrystal, M.A.

Differentiation of the symptom complex of hysterical paralysis from poliomyelitis does not appear to be a frequent diagnostic problem. A search of the literature reveals very few reported cases.[1, 2] From June, 1952, until June, 1957, approximately 200 patients have been hospitalized at the Jewish Chronic Disease Hospital for treatment of acute or chronic poliomyelitis. Almost all were referred from a contagious disease hospital, where the diagnosis of poliomyelitis was made during the acute stage. Two of the cases presented unusual symptomatology and subsequent progress indicated they were most probably of hysterical nature.

CASE 1—A 7 year old female was admitted on Sept. 5, 1952, as a transfer from a contagious disease hospital, where a diagnosis of poliomyelitis had been made. Her illness began on Aug. 26, 1952, when the child suddenly slumped to the sidewalk while walking. Later she experienced weakness of the lower extremities while ascending the stairs in her home. The following morning difficulty in walking became more manifest and the child was put to bed. Her temperature did not exceed 100°. Several physicians were consulted and a diagnosis of possible polio was made.

She was admitted to a contagious disease hospital on Aug. 28, 1952. The temperature remained normal during her stay in that hospital. The spinal fluid showed a total protein of 28 mg. per cent with 15 cells, the majority of which were identified as lymphocytes. Treatment included 25 mg. of Priscoline every 3 hours during the day and every 4 hours during the night.

On first examination at the Jewish Chronic Disease Hospital, the patient appeared to have complete paralysis of the lower extremities, with moderate to severe weakness of the abdominal and spinal muscles. There was no loss of sphincter control. In the upper extremities, the muscles about the shoulder joints appeared to be severely involved. Reflexes in all four extremities were active; the abdominal reflexes were considered normal. There were no signs of atrophy. The "paralysis" appeared to be symmetrical throughout. Electrical testing and manual muscle evaluation were ordered. In addition, muscle reeducation was instituted. The patient was referred to the neurological, orthopedic, psychological, and social service departments.

Systematic manual muscle testing revealed diffuse bilateral muscle weakness throughout the entire body, but the test was not considered valid, since the patient's response was variable and fluctuating. It was felt that the patient was capable of performing at a much higher level than the testing indicated. The electrodiagnostic result seemed to confirm this impression. Faradic current was applied to the various muscles innervated by the sciatic, femoral, axillary and musculocutaneous nerves with resulting tetanic contractions.

The psychology service, following careful evaluation, concluded that there was no tangible psychic mechanism which would indicate a primary psychogenic origin for the paralytic manifestation.

The findings of the neurological department were equivocal. Diffuse involvement of the extremities was noted, but the deep reflexes of the lower extremities were easily elicited. The reflexes of the upper extremities responded normally. It was the general consensus that the patient had polio, and it was recommended that physical therapy be administered daily. The orthopedic department also noted diffuse and marked involvement together with spasm of the plantar flexors, hamstrings, back and neck musculature. The pediatric service, in addition to the above findings, also noted variable Babinski and Oppenheim reflexes. This service raised the question of an ill defined encephalitic process, but serological tests appeared to rule out this possibility.

The patient was given a program of muscle reeducation in physical and occupational therapy. Within three weeks a marked change was noted in her condition. Manual muscle testing revealed an increase of from one to three grades on all muscles tested. Ambulation was started; the gait was awkward because the patient walked with extended knees. The patient was seen in a combined conference (orthopedics, physical medicine and rehabilitation, pediatrics and neurology) in December, 1952. It was still felt that the patient had had poliomyelitis. The patient was now recommended for discharge and was to come to the outpatient clinic for further physical therapy and orthopedic evaluation. Improvement continued and by August, 1953, all treatment was discontinued. Provision was made by the

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orthopedic service for periodic evaluations. In November, 1953, the patient was examined by the orthopedic service and little or no residual effects of polio could be found. In March, 1954, the orthopedic service inserted the following on the patient's chart: "Gait is normal. Examination of the upper extremities reveals no weakness. Abdominal and back muscles are intact. There is no apparent weakness in the lower extremities. Patient walks on her heels and toes without any difficulty. Examination reveals no residual effects of polio. To return in 6 months."

Patient was seen in October, 1954, and was discharged from the clinic as cured.

CASE 2—A 20 year old female was admitted to the Jewish Chronic Disease Hospital in September, 1955, with the chief complaint of inability to walk. In the early part of September, 1955, she had an upper respiratory infection characterized by cough, headache, "pus in tonsils," dysphagia and temperature elevated to 102° F. She was treated by her private physician with penicillin and was well three days later. Ten days after the onset of the upper respiratory illness, the patient complained of pain in the left hand and fingers. At that time, severe headache and "stiffness" of the neck appeared. On the same day, the patient was transferred to a contagious disease hospital, where a spinal tap was performed. The spinal fluid was clear, colorless, total protein 30 mgs., globulin—negative. She was hospitalized there for one month with a diagnosis of spinal poliomyelitis, and on Oct. 19, 1955, she was transferred to this institution for rehabilitation.

The physical findings upon admission here were as follows: right upper and lower extremities were considered normal. The musculature of the left upper extremity was considered normal at the shoulder girdle and shoulder joint.

There was weakness of the elbow and hand. The entire musculature of the left lower extremity was considered as trace to poor. The deep tendon reflexes were elicited equally in all four extremities; abdominal reflexes were present. There was no evidence of atrophy throughout the affected extremities and no sensory changes. The patient was placed in the rehabilitation ward and a program including physical and occupational therapy was prescribed.

The manual muscle test revealed marked deficiencies in the left lower extremity, and was repeated because of the bizarre patterns of movement found during the testing situation. When the patient was asked to attempt to dorsiflex the left foot, there was no response. In passive movement of the left ankle, however, the foot remained in dorsiflexion and the tibialis anticus tendon could be felt and seen. Voluntary extension of the knee could not be elicited, but attempts to passively flex the knee met with firm resistance. In the side-lying position, the patient could not abduct the left lower extremity, but when the extremity was placed in the abducted position, it was held in that position for a moment and then gently dropped to the neutral position. In the left upper extremity, the principal weakness appeared to be in the intrinsic hand muscles, especially the opponens pollicis and opponens digiti minimi. The observations of the occupational therapy division, however, seemed to indicate that the patient had full use of the fingers, since she was able to perform adequately such activities as sewing, knitting, and typing.

The patient ambulated using a Lofstrand crutch on the right. The involved left lower extremity was not supported in any manner. The gait was slow and halting with some circumduction on the left, probably because the left foot was held in equinus. There was no sign of genu recurvatum during ambulation nor was any tilting of the pelvis discernible. Stair climbing, accomplished with relative ease after a week's training, was performed in a normal alternate fashion.

Routine electrodiagnosis, chronaxie, and electromyography on selected muscles failed to reveal any abnormality. Faradic current applied to the left tibialis anticus, gastrocnemius, vastus medialias and opponens pollicis produced normal tetanic contractions. The chronaxie findings on the same muscles were within normal limits: tibialis anticus —.3 msc., gastrocnemius—.4 msc., vastus medialis—.2 msc., opponens pollicis—.1 msc. Electromyography of the tibialis anticus and gastrocnemius revealed zero potentials at rest; no fibrillations and only occasional diphasic potentials when the extremity was raised passively and dropped by the examiner.

The patient was then presented at a joint conference with the neurology service. Because of the clinical and electrical findings, the organicity of the paralysis was considered doubtful; a diagnosis of possible conversion hysteria was made. Psychiatric consultation was recommended; in the meantime, the physical medicine and rehabilitation program for the patient was continued. The results of the various psychological tests taken by the patient seemed to indicate a deep-seated emotional problem, which was being held at a standstill by her hospitalization. It was the opinion of the psychological service that regardless of whether her physical illness was of hysterical origin or not, the patient's emotional illness was of such severity that it seemed doubtful if she would be able to find any satisfactory solution to her difficulties without long term therapeutic intervention. Psychiatric care on an outpatient basis was suggested, but this was refused by the patient.

The patient was discharged on Jan. 13, 1956 (contact with our social service department remained) and was referred to the Visiting Nurse Association. Treatment was given twice weekly until August, 1956, when the patient married. In September, 1956, the visiting service was informed that the patient was pregnant and could no longer take treatment.

The patient failed to keep her appointments with our social service and was statistically discharged from the hospital.

In March, 1957, the patient visited the hospital; ambulation was now normal, and there was no evidence of muscle weakness in any of her activities.

CONCLUSION: Two case histories of possible pseudoparalytic involvement are presented. In both of these cases, the early diagnosis was that of poliomyelitis. Subsequent clinical and laboratory findings and course of these patients appear to make the diagnosis of conversion hysteria more likely than that of any organic involvement. The symmetrical involvement of Case 1 might be considered suggestive of Guillain-Barré syndrome, but the absence of characteristic spinal fluid findings makes this diagnosis doubtful. The presence of 15 cells, "mainly lymphocytes," is of course abnormal and suggestive of a pathological process. Case 2 appears clearly psychogenic from history, physical findings, and subsequent course. It is probable that psychogenic equivalents of poliomyelitis are seen and diagnosed more frequently than would appear from published reports. It is our hope that this paper may stimulate such reports in the future.

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Use of Cold Applications in the Management of Spasticity

Report of Three Cases

Sarah W. Bassett, B.S., and Barbara M. Lake, B.S.

The use of cold applications to reduce spasticity resulting from upper motor neuron lesions was first observed by one of the co-authors of this report during a short period of study at the California Rehabilitation Center, Vallejo, in 1953. Since that time we have used this procedure where indicated and found it to be extremely helpful in controlling spasticity to a degree sufficient to enable the patient to carry out exercise and self-care programs in a more active and functional manner. The technics of application vary according to the extent of involvement, the results obtained in the initial phase of treatment, and the adaptation to the home program of therapy. We have found the medium of cold to be more effective when the applications are moist or wet, as opposed to the dry ice bag. To a lesser extent, this method of treatment has been used on patients with localized muscle spasm existing as the result of disease or trauma; heat had not been too successful in alleviating the condition, but marked improvement was noted after the cold applications were used. The case presentations at this time, however, will be confined to patients with a neurological impairment and residual spasticity.

From Boston Dispensary Rehabilitation Institute, New England Medical Center, Boston
Sarah W. Bassett, Supervisor of Physical Therapy; Barbara M. Lake, Senior Staff Physical Therapist.

CASE A.—A 31 year old male with the diagnosis of multiple sclerosis, onset 7 years ago. Over the past two years, gait difficulties have increased. On admission to our center, examination revealed muscle weakness about the right hip, knee, and ankle, and marked spasticity of the quadriceps, gastrocnemius-soleus, and posterior tibial muscles. He was equipped with a below-knee Klenzak brace, but toe-drop persisted and he walked with a rigid knee and circumducted gait. Physical therapy was prescribed: Cold applications consisting of crushed ice wrapped in wet towels were placed over the spastic groups of muscles for 10 minutes, followed by exercise to the agonist muscles, or groups of muscles, and gait training.

During the initial treatment, immediate reduction of clonus and spasticity was noted and these favorable effects lasted for 12 hours. The patient received four treatments on alternate days and was then placed on a home program. On follow-up visits, continued improvement and coordination in gait, with or without the brace, has been noted.

There is an interesting "postscript" to the home program. This man is the district sales manager of a manufacturing concern and is required to travel extensively with many hours of steady driving. To relieve the tension which builds up due to lack of opportunity for position change, he carries two ice caps and has them filled with crushed ice at a restaurant when stopping for lunch. As the need arises, he straps one cap over the anterior thigh and the other on the calf of the right leg. This does not interfere with driving and appears to sustain mobility.

CASE B.—A 25 year old telephone lineman fell from the top of a telephone pole, striking on the back of his neck. Symptoms of quadriplegia developed immediately. X rays demonstrated a fracture of the sixth cervical vertebra and the patient was placed in traction (crutchfield tongs). There

was gradual return of function and six months later, on admission to our center, examination revealed good strength in the upper extremities, although diminished fine hand coordination accompanied by mild tremor was noted. Physical therapy was prescribed: Both hands and wrists were intermittently immersed in cold water (50 degrees) for 10 minutes followed by exercise to wrists and fingers with emphasis on the intrinsic musculature of the hands. Finger dexterity improved immediately and daily gains were noted in function and facility. The residual effects in the lower extremities were more pronounced in that bilateral ankle clonus and spasticity in the right quadriceps, gastrocnemius-soleus, and posterior tibial muscles were severe. These problems were made more pronounced by marked weakness of the right hip, knee, and ankle; gait problems were numerous. To improve lower extremity function, cold therapy was applied to the spastic areas (in the manner prescribed in Case A), followed by exercise and gait training. This program was carried out daily for a month on an inpatient basis—treatment in toto in the morning hours, and exercise and gait training in the afternoon. With the problem of spasticity reduced to a minimum, over-all function improved and the patient was discharged on a home program.

CASE C.—A 55 year old female with the diagnosis of multiple sclerosis, onset 20 years ago. This woman remained ambulatory until two years ago and independent in all activities of daily living until one year ago. On admission to our center, examination revealed extensive involvement of the trunk and four extremities; power in the upper extremities was sufficient to enable her to propel the wheel chair, but inadequate to overcome the strong extensor thrust of the trunk and right lower extremity and the severe flexion-adduction contraction of the left lower extremity—impeding transference and elevation activities necessary for self care and standing. Physical therapy previous to this admission had consisted of tetanizing current, hot packs, passive stretching concurrent with chemotherapy, but the patient states that the relaxing effects were of such short duration that it was impossible to carry out exercise and functional activities at home between the twice weekly outpatient visits. The physicians agreed that cold therapy be given a trial.

Because of the extensive and complex nature of the spasticity, localized applications of cold were inadequate, so the patient was immersed in the hubbard tank, for a period of 10 minutes. The temperature of the water was 80 degrees, which was within the patient's tolerance. During this session relief of spasticity was such that she could initiate movement previously blocked by involuntary motion; and the force of stretch reflex, precipitated by passive range of motion exercise, diminished immediately. As the patient gained neuromuscular control, she also improved in maneuverability. The time in the tank was increased to 20 minutes and the exercise program extended to include mass movements basic to independent management of bed and wheel chair activities. These procedures were carried out three times weekly on an outpatient basis in addition to a home program of exercise. As tolerance to activity improved, mat exercises and functional training were added to the treatment regime. After six weeks, visits to the physical therapy department were discontinued, as aids and devices necessary to the continuation of immersion in a cool tub had been installed in the home, and independence in self care, transfer activities, and standing had been achieved—at least for the duration of this remission of her disease.

CONCLUSION

Lest these reports appear to reflect an absolute solution of the problem under discussion, we hasten to add that a good 30 per cent of the patients so managed derived little or no prolonged benefit from cold therapy. However, for the majority it proved to be of immeasurable help by virtue of effecting sufficient release of spasticity to permit the initiation of active movement and ultimate gain in power adequate to overcome this disabling condition.

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Proprioceptive Neuromuscular Facilitation Film

A 35 minute color film with sound is available to chapters and schools of physical therapy at a rental fee of $10.00. One copy of the film has been given to the Association by the California Rehabilitation Center. Requests from states east of the Mississippi should be directed to the American Physical Therapy Association, 1790 Broadway, New York 19, New York; rental is payable to the American Physical Therapy Association. Those west of the Mississippi should write to California Rehabilitation Center, 2600 Alameda, Vallejo, California; rental is payable to the California Rehabilitation Center. All requests should be submitted two weeks in advance of date of showing. Alternate dates are desirable since both copies may have prior bookings.

Hip and Back Stabilizing Safety Unit for Wheel Chair Patients

Vincent J. Barbato, M.A.

Introduction

The need for a device which will aid weak or paralyzed patients to sit properly has been felt by all who are concerned with their care. Commonly, these patients are strapped to a wheel chair by means of an abdominal belt. They usually have a poor functional sitting position and outward rotation of the thighs. Although many of the patients receive treatment to correct this position they shortly resume the poor sitting posture and acquire other inefficient and harmful body mechanics as well.

A stabilizing device to be satisfactory should include the following:

1. Ability to secure the patient properly in the chair,
2. Economy of material and labor,
3. Adaptability to patients of all sizes,
4. Easy application in a minimal amount of time.

The prime requisite of a stabilizing belt is that it secure the patient in such a position that the posterior part of the spine will be stabilized against the back rest of the wheel chair. Because most patients lose stability in the low back region, they slide to the front of the wheel chair seat.

Description

The hip stabilizing safety device consists of two webbed straps; each starts at the center of the wheel chair seat and is attached to the lateral posterior portion of the chair by means of a buckle. This strap crosses the upper thighs of the patient (Fig. 1).

The thoracic stabilizing strap consists of one webbed strap which is attached to a slot 2 inches in length on either vertical upright of the wheel chair back. This strap, which runs horizontally under the arms and across the base of the patient's pectoral muscles is secured to a buckle fastened to the opposite vertical upright of the wheel chair (Fig. 1).

The U-shape foam rubber cushion consists of a rubber pad and plastic cover, 19 inches wide by 20 inches long, with a slot 2 inches wide by 9½ inches long cut through the center.

Construction

Seat

1. Measure width of seat to obtain center.
2. Measure 5 inches from the anterior portion along the center line.
3. From this starting point, construct a slot 5 inches in length toward the posterior portion of the center line, the slot being ½ inch in width.
4. On both sides of seat, measure 2½ inches from posterior corners toward anterior corners and drill holes ¼ inch in diameter and about ¾ to 1 inch in depth at these points (Fig. 2 and 3).

Straps

The straps are 3 inches wide and 20 inches long and are made of canvas. The following applies to each one:

1. Measure 1½ inches from one end of the strap and 1½ inches across the width of strap. At this point, punch a hole ½ inch in diameter. Fasten No. 3 grommet. This is the site where a 5/16 by 2 inch

Figure 1.

A. Hip stabilizing strap.
B. Thoracic stabilizing strap.
C. Outward rotation strap.
D. Foam rubber cushion.

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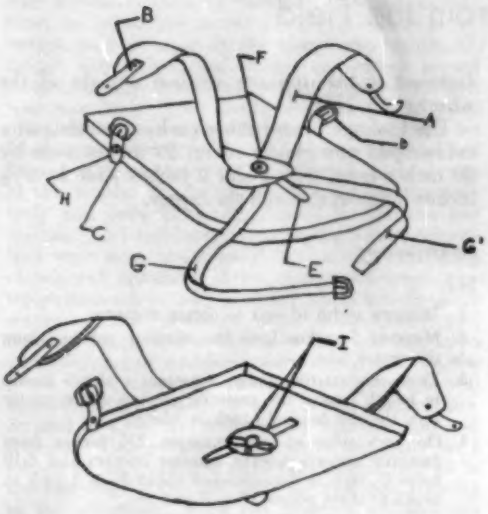

Figures 2 and 3.

A. 3 x 20" web strap
B. 1½ x 24" web strap
C. 1½ x 4" web strap
D. 1½" buckle
E. 1¼ x 5" slot (base of chair)
F. 5/16 x 2" rd. head bolt.
G. and G¹. 1½ x 22" web strap 7 buckle.
H. Grommets #0.
I. Wing nut, lock and flat washers.

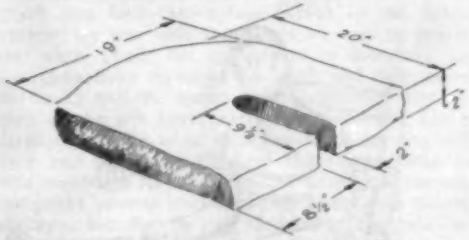

Figure 4. U-shaped foam rubber cushion with cover.

round head stove bolt is inserted through both straps and placed anywhere along the slot to be secured by a 5/16 inch wing nut.

2. Another strap 1½ inches by 24 inches and doubled for strength, is sewn on the 3 inch strapping. Measure 9 inches from the end opposite the hole and sew on 1½ by 24 inch strapping.

BUCKLE

The measurements of the strap attached to the buckle are 1½ inches wide by 4 inches in length. The thickness of this strap is four layers of web strapping sewn together. To obtain place of fastening to lateral portion of chair, measure 2¾ inches from the base of the buckle and ⅝ inch across the strap and punch at that point a hole ¼ inch in diameter. Fasten No. 0 grommet on strap at that point and attach to seat using ¼ by No. 10 Parker Kalon sheet metal screw.

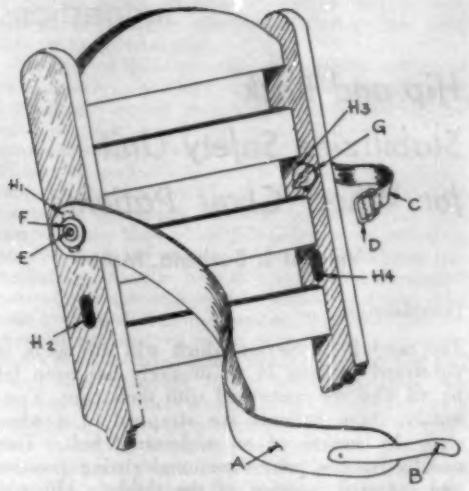

Figure 5.

A. 3 x 22" web strap.
B. 1½ x 8" web strap.
C. 1½ x 6" web strap.
D. 1¼" buckle
E. 5/16 x 1½" head bolts. (2)
F. Grommets #0. (2)
G. Wing nut, lock and flat washers. (2)
H. Slots H¹ to H⁴, 1½ x 2 —centrally located between horizontal bars.

A schedule of the materials used, labor involved, and cost per item follows:

QUANTITY	MATERIAL	APPROXIMATE COST
3	1½" buckles	$ .30
6	Grommets No. 0	.10
2	Grommets No. 3	.04
2	3" x 20" web straps	.45
1	3" x 22" web strap	.25
4	1½ x 24" web straps	.50
4	1½ x 22" web straps	.46
2	1½ x 8" web straps	.10
8	1½ x 4" web buckling	.32
4	1½ x 6" web buckling	.20
1	5/16 x 2" rd. head belt	.03
2	5/16 x 1½" rd. head belt	.05
3	5/16 wing nuts and flat washers	.08
2	¼ x No. 10 Parker Kalon screw	.02
1	Foam rubber cushion and cover, 20" length; 19" wide, 2" height	6.00
		$8.90

Construction time: Approximately two hours.
Cost of labor: Approximately $4.00

Adaptations

Two web straps 1½ inches by 22 inches, double for strength, with a 1½ inch buckle are used in cases where outward rotation of the legs is prevalent (Fig. 1).

A U-shaped foam rubber cushion may be used when indicated to further prevent slipping and to lessen pressure against a hard surface (Fig. 4).

A thoracic stabilizing strap may be used when the trunk stability is poor. This strap is adaptable to any size patient (Fig. 5).

Foam rubber pads may be used beneath the web strappings when the condition of the patient warrants it.

It is probable that the device would prove even more effective for quadriplegic, severe polio and severe hemiplegic patients with these additions.

Discussion

This device prevents the patient from sliding off the chair seat and gives him a feeling of security which encourages him to attempt activities he could not perform otherwise. The straps hold the patient in a proper sitting position, thus reducing back pain and muscle soreness.

Certain advantages also accrue to the hospital attendants who, having secured their patients with these straps, can go about their duties with confidence that they need not continually check the patient for adjustment, comfort, and safety. Not to be overlooked is the protection afforded the hospital with respect to personal injury actions resulting from a patient's fall from a wheel chair.

The straps have been used with two paraplegics, both over 60 years of age, and for a patient 49 years of age with an early severe flaccid paralysis on one side. These patients state that their comfort, security and maneuverability have been increased.

A Supportive Apparatus for Patients Standing in Hospital and at Home

Sidney Bedell, M.A.

The apparatus herein reported has been used successfully in this hospital for the past several years. It is used primarily to assist patients who have graduated from the tilt table but are unable

Physical Therapist, Jewish Chronic Disease Hospital, Brooklyn, New York.

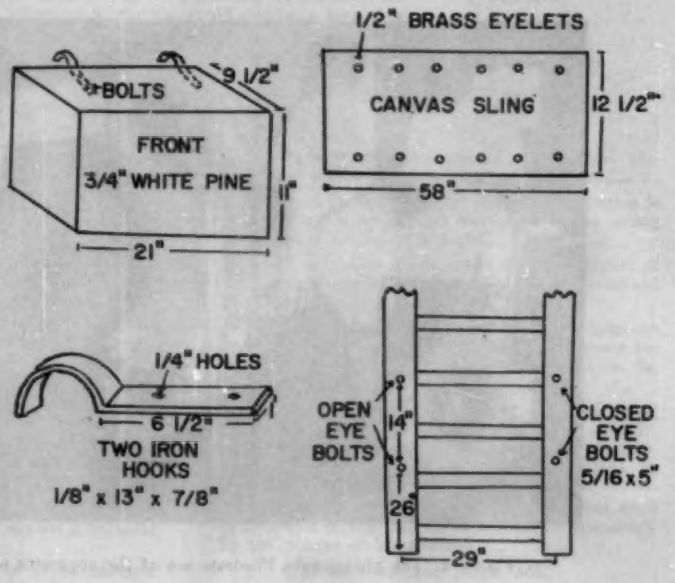

Figure 1. The front of the box is covered with 1 inch foam rubber and then the entire box is covered with leatherette. The iron hooks are screwed to the box by 1¼ by ¼ inch bolts. Four harness hooks and 4 eyebolts 5 by 5/16" attach the canvas sling to the parallel bars.

to stand between parallel bars without a great deal of support. The basic principle of this device is that it gives rigid support for both hips and knees in extension with the upper extremities maintaining trunk in extension. This device has its greatest advantage in that it is relatively easy to apply to the standing patient, and the cost of construction is moderate. It is applicable not only in the hospital but in the home.

This apparatus was designed to aid in the prevention of flexion contractures of the lower extremities. Benefits derived are related to the physiological value of longitudinal weight bearing, and the psychological value of standing.

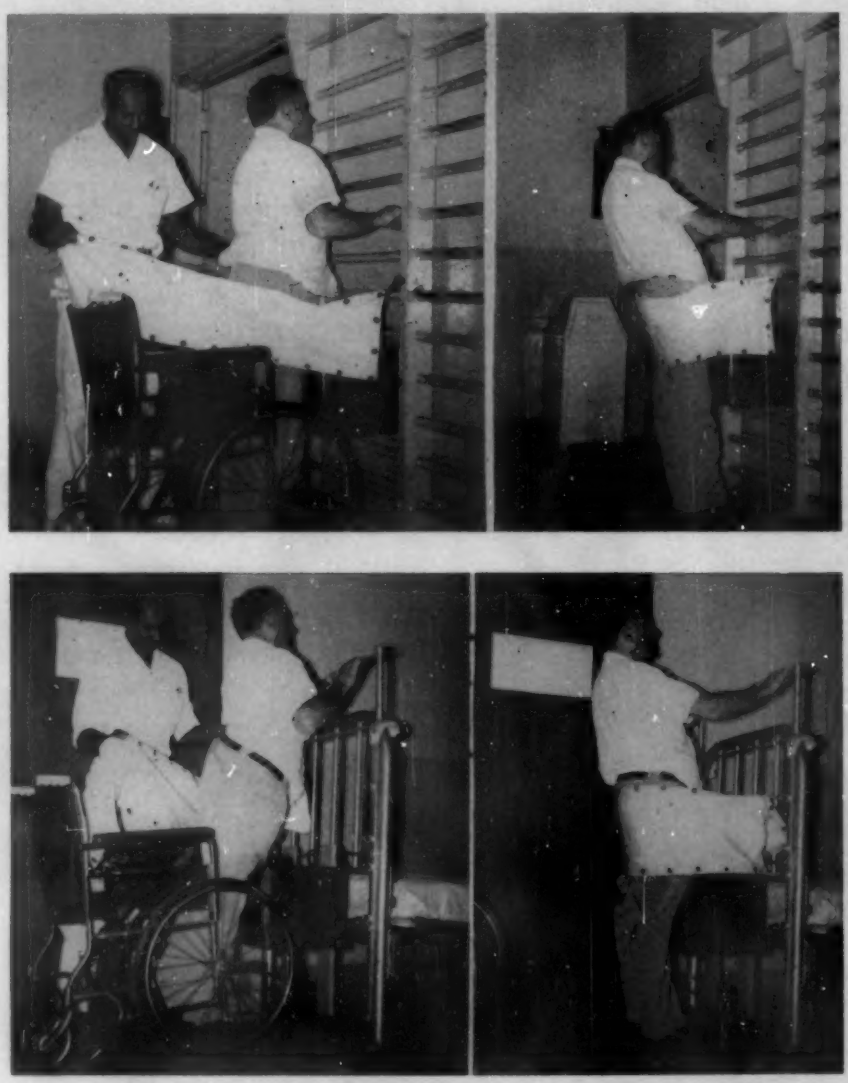

Figure 2. The photographs illustrate use of the apparatus on stall bars and bed.

Professional Test

How well informed are you in legal matters pertaining to physical therapists? If you miss more than 3 of the following 28 questions, we suggest you review the series of articles by Helen Creighton on "Law for Physical Therapists," recently published in the *Physical Therapy Review*.

Part I. Matching

In the parenthesis preceding each item in Column II, place the number designating the phrase in Column I most directly associated with the word or phrase in Column II. Items in Column I may be used only once.

COLUMN I	COLUMN II
1. A promise or set of promises, for breach of which the law gives a remedy or in some way recognizes the fulfillment as a duty.	( ) An act of God
2. Life, liberty, pursuit of happiness.	( ) Law
3. Any professional misconduct, unreasonable lack of skill or fidelity in professioral or judiciary duties, evil practice, or illegal or immoral conduct.	( ) Malpractice
4. For the employer to be liable it is essential for the employee to be his servant, according to the law.	( ) Actionable libel
5. A false defamatory statement made in writing to a third person.	( ) Invasion of the right of privacy
6. A defamatory statement made by word of mouth to a third person.	( ) Master-servant rule
7. A failure, without a legal excuse, to perform a promise and this gives rise to the right of a legal remedy.	( ) Slander
8. A statement which causes a person to be held in contempt or disrepute or which tends to diminish a value or esteem by which he is held by ordinary folks.	( ) Breach of contract
9. Publication of a patient's picture without his specific consent.	( ) Defamatory statement
10. An interruption of the usual course of events that such care, experience, and foresight as a person might reasonably be expected to use would not have foreseen or protected against.	( ) Legal right
11. A legal document that permits a person to offer to the public his skills and knowledge in a particular jurisdiction, where such practice would otherwise be unlawful without a license.	( ) Contract
12. A set of statutes, regulations, and precedents made for the welfare of the people.	( ) Bill of Rights
13. That which a person is entitled to have, to do, or to receive from another whose duty is imposed within the limits prescribed by the law.	( ) License

Part II. True-False

1. The licensure of physical therapists is a function of the state government under the police power of the sovereign state._____
2. Less than half the jurisdictions of the United States have licensure laws for physical therapists._____
3. Acting in good faith constitutes an absolute defense in a prosecution for illegal practice of medicine._____
4. For genuine legal control over a profession, mandatory not permissive laws are required._____
5. An employment contract may be made orally or in writing._____
6. Depending on the situation, either the employer or the employee may be held liable if terms of a contract are not fulfilled._____
7. Negligence in law is not a wrong._____
8. The law does not allow insurance against a criminal act._____
9. Carrying malpractice insurance to cover possible damage claims and the cost of expert legal protection is advisable for a physical therapist._____
10. The physical therapist as an employee and agent is not relieved from liability because he was acting under the direction of a doctor._____
11. Physical therapists should make a written report of the circumstances of all accidents or untoward happenings._____
12. If the person wronged gets money damages from the employer, the employer has the right to recover his loss from his employee when the latter has done the wrong._____
13. A physical therapist, acting under an employment contract, is entitled to time off as a matter of *right*, provided he can offer the services of another individual with equal or superior qualifications to substitute for him throughout the stated time._____
14. Acceptance by a physical therapist of substantial gifts from a patient may be challenegd in law either by the patient or his relatives._____

(For answers see page 368)

Index to Current Literature

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Advantages of Intermediate Prosthesis in the Rehabilitation of the Lower Extremity Amputee: Preliminary Report. H. J. Bugel, W. Zilmer and J. Grigsby, Arch. Phys. M., 39: 28-35, January 1958

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Sensory Disturbances in the Hands of Children with Cerebral Palsy. Mihran O. Tachdjian and William L. Minear, J. Bone Surg., 40-A: 85-90, January 1958

The Life Experience of Persons with Cerebral Palsy. Helen Wortis and William Cooper, Am. J. Phys. M., 36: 328-344, December 1957

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Retrograde Leg-Milking Test for Varicose Veins. John A. Gius, J. Am. M. Ass., 166: 249-251, Jan. 18, 1958

Sympathectomy for Raynaud's Phenomenon. R. W. Gifford, E. A. Hines and W. McK. Craig, Circulation, N. Y., 17: 5-13, January 1958

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Occurrence of So-Called "Myotonic Discharges" in Electromyography. Joseph Goodgold and Kenneth C. Archibald, Arch. Phys. M., 39: 20-22, January 1958

The Biological Effects of Microwave Radiation on Air Force Personnel. George M. Knauf, A. M. A. Arch. Indust. Health, 17: 48-52, January 1958

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Immunity to the Afflictions of Old Age. Flandars Dunbar, J. Am. Geriat. Soc., 5: 982-996, December 1957

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The Relation of Pectus Excavatum to Pectus Carinatum. Charles W. Lester, J. Pediat., 52: 82-86, January 1958

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(continued on page 381)

Remarks For The Good Of The Order *

This article is published with the agreement of the Judicial Committee that the synonymous use of the words *physical therapy* and *rehabilitation* should be discouraged in that such usage is misleading.

In the past several years in the State of Connecticut, at least, there have been several instances in which the term "rehabilitation" has been used by physical therapists in announcements of the opening of a private office. This has raised questions in various areas, and it seems worth commenting on.

The term "rehabilitation" is used rather freely for purposes of describing reconstruction procedures, also the return to normal of functions of a political subdivision, or a country. It is also spoken of in the rebuilding or refurnishing of a building or a car and is variously used in the medical field concerning people. This terminology has included medical rehabilitation, psychiatric rehabilitation, vocational rehabilitation, and physical rehabilitation so that there is admittedly a rather loose usage of the term. However, in thinking in the field of medical or physical rehabilitation or rehabilitation as applied to the total problem of a handicapped individual, it is felt that the medical profession and the paramedical fields active in the medical area all contribute to the redevelopment of an individual to his peak capacity. In this direction it is admitted that team function is the approach of choice because the problem has so many facets that one individual is not able to be effective in the complete problem, answering and trouble shooting all of the various angles involved. It is true that this team function is best headed by a physician and we have many examples of different disciplines in medicine and surgery heading up such teams. Most commonly these are a physiatrist, an orthopedist, a pediatrist and, in some instances, a neurologist. It admittedly requires a medical chief for such functions, and he depends very extensively on the opinion of the members of his particular team in coming to decisions relative to evaluating objectives and an over-all program. Such planning leaves a minimum opportunity for oversight and does tend to make available to the patient the greatest advantage from careful consideration, planning, and help from the various disciplines of medicine, physical therapy, occupational therapy, speech therapy, social service, nursing, vocational counseling, selective placement, etc., in returning him to a gainful activity as promptly as possible.

It is, therefore, our feeling that the usage of the term "rehabilitation" by a physical therapist is not the procedure of choice and should be discouraged. It is further our thinking that no physician should set himself up as the last word in rehabilitation any more than the therapist should. Those of us who are active in this field recognize what is being implied, but the public does not know these details, and the usage of such terminology for purposes of public information is felt to be definitely misleading. If a therapist is indicating to the public that he is a registered therapist and is available for treatment purposes under the direction of a physician and that this activity is in the field of physical therapy, it is our feeling that this is what should be stated and implications of other functions probably would be better deleted.

JOHN C. ALLEN, M.D.
Physiatrist, Hartford Hospital

* Reprinted from the Connecticut Chapter Newsletter, the *Nutmeg News*, December, 1957.

Editorial

Cerebral Palsy—A Continuing Challenge

Thirty years ago, it was customary for a physical therapist to receive a treatment request which read: "Diagnosis: spastic paralysis —do what you can for the patient." Thirty years ago physicians and the public alike knew very little about this developmental or disease entity. The related medical literature was concerned with describing the condition rather than how to treat it. Few patients with cerebral palsy were brought to the physician for treatment. The consensus was that very little could be done to help them. The public was disinterested and the families of these children hid them or carried the burden of responsibility as well as they could. As so often happens, the general ignorance that prevailed about the patient with cerebral palsy was not challenged until a few persons demonstrated that something could be done to help these children.

Through evolution, the outlook for the person with cerebral palsy today presents a vastly improved picture. Advances in medical knowledge have assisted the physician in giving differential diagnoses and definitive treatment. Surgical procedures, drugs, bracing and supportive apparatus, treatment modalities and educational potentialities are considered in relation to the severity of the disability and an extended developmental training program. Physicians, therapists, and teachers having specialized training, plus consultants from allied fields, have combined their knowledge, talent and experience to offer an integrated evaluation and treatment program for these children. The parents, who are key members of this team are continuing to request these services from the community medical centers and educational institutions, and are working closely with professional personnel. Through the efforts of groups of parents financial assistance has been obtained to develop and promote centers for education and treatment. Thus society is learning to know and accept the patient with cerebral palsy and to assist in the care and treatment.

How has all this developed, and why has it happened in so short a period of time? What effect has it had on society, persons with cerebral palsy, and professional personnel? These are provocative questions which would require more time and analysis to answer than is possible here. Several contributing factors, however, should

Editorial

be mentioned as important mileposts in this evolutionary process.

Within this period, there has been an increasing tendency for specialization in medicine. This in turn has concentrated advances in each confined area. Since cerebral palsy is a central nervous system lesion, the manifestations are widespread involving any number of distal end organs. For example, vision, speech, and hearing problems are now recognized. Thus, much of the knowledge gained has directly or indirectly contributed to a better understanding of the ramifications of this condition.

Those who studied and worked with these children appreciated that all "spastics" were not mentally incompetent, and that they did not all present the same degree or type of physical disability. Many psychologists and teachers, realizing that the devices for evaluation of normal children were inadequate, developed testing tools so that a more accurate appraisal of the developmental level and potential of cerebral palsied children could be obtained. They contributed much of the early literature, publicity and teaching methods that furthered better care for the patient with cerebral palsy.

Throughout these thirty years, and especially during the earlier period, the physical therapist has been a vital contributor to the treatment program. He not only trained the child but assisted in interpreting the treatment objectives to parents, teachers, and others interested in the problems of cerebral palsy. Many of the assistive devices found in the cerebral palsy centers of today are the result of the ingenious physical therapists who used the apparatus to encourage physical development of the child.

With the increase in and dissemination of knowledge, community groups raised money to finance student scholarships, treatment centers, research grants, and to purchase medical care and consultant services. The nature of the physical disability and the academic needs present an ever constant demand for sources to continue this program.

As the central figure in a medical drama requiring the talents and services of almost all disciplines, the complexity of cerebral palsy has continued to challenge, frustrate, and stimulate people into action, education, and research. The doors through which many people with cerebral palsy have walked toward a richer more independent life are opened and they must be kept open.

Many problems remain to be solved. One of the most important of these is vocational training and job placement. Further advances in medical knowledge directed towards the prevention and reduction in the number of patients with cerebral palsy will continue to be the greatest contribution that experience and intensive study can produce. Let the results of these studies be widely published so that all concerned may profit by them, that a totally realistic course of action may continue to offer the means by which living can become more worthwhile to those afflicted with cerebral palsy.

MARCIA G. SHAW
Director, Therapy Coordination
Detroit Orthopaedic Clinic

CONFERENCE 1958

Seattle • June 15-20 • Olympic Hotel

Business Meetings and Program Schedule

June 12, 13 and 14 — **Board of Directors Meetings**

Sunday, June 15

8:00 A.M. — 5:00 P.M. — **General Registration**

9:00 A.M. — 5:00 P.M. — Section on Education
Self Employed Section
Public Health Section

2:00 P.M. — 5:00 P.M. — Chapter Workshop

5:00 P.M. — 8:00 P.M. — **Explorers' Potlatch**—Washington State Chapter, Host

Monday, June 16

8:00 A.M. — 5:00 P.M. — **General Registration**

9:00 A.M. — 12:00 Noon — **Delegates' Registration**

10:00 A.M. — 12:00 Noon — Group Meetings—Arthritis and Rheumatism Foundation, Crippled Children's Societies, Research Group, State Examining Committees, Veterans Administration; Section on Education, Trading Post

1:30 P.M. — 4:30 P.M. — Opening Session—Greetings, President's Address
NEUROPHYSIOLOGY A PHYSICAL THERAPIST SHOULD KNOW, Ernst Fischer, M.D., Research Professor of Physiology, Medical College of Virginia

7:00 P.M. — 10:00 P.M. — **Film Theater**

Tuesday, June 17

9:00 A.M. — 12:00 Noon — **House of Delegates**

2:30 P.M. — 5:00 P.M. — PATHOLOGICAL FACTORS WHICH LIMIT PURPOSEFUL MOVEMENT, Lawrence M. Knopp, M.D., Instructor in Neurosurgery, University of Washington, School of Medicine, Seattle
PANEL DISCUSSION: AS WE SEE IT—SEMANTICS IN THEORIES OF REEDUCATION, Ernst Fischer, M.D.; Berta Bobath, Principal, The Western Cerebral Palsy Centre, Ltd., London, England; Margaret Knott, Physical Therapy Director, California Rehabilitation Center, Vallejo, California; Margaret Rood, Professor, Physical Therapy Department, University of Southern California

6:00 P.M. — 7:00 P.M. — **Reception for Board of Directors**

7:30 P.M. — **Annual Banquet**

Wednesday, June 18

9:00 A.M. — 11:00 A.M. — **House of Delegates**

2:30 P.M. — 5:30 P.M. — HOW WE DO IT — Lectures and Demonstrations, Karel Bobath, M.D., Senior Assistant Psychiatrist, Brookwood Hospital, Surrey, England, and Berta Bobath; Margaret Knott; Margaret Rood (Rotational Session)

7:00 P.M. — 10:00 P.M. — **Film Theater**

Thursday, June 19

9:00 A.M. — 12:00 Noon — THE PATIENT: ANALYSIS OF MOTOR DYSFUNCTION; PLANNING OF ACTIVITIES, CRITERIA FOR MEASUREMENT OF PROGRESS; Berta Bobath, Margaret Knott, Margaret Rood, Ernst Fischer, M.D.

PANEL DISCUSSION: TESTING AND MEASUREMENT — PURPOSES AND METHODS. William R. Duncan, M.D., Orthopedic Consultant, Crippled Children's Division, Washington State Department of Health, Seattle

Sherburne W. Heath, M.D., Director, Physical Medicine and Rehabilitation, Children's Orthopedic Hospital, Seattle.

Helen Vaughn, Coordinator of Physical and Occupational Therapy, Bureau of Maternal and Child Health, District of Columbia

Dorothy Peterson, AMSC, Staff Physical Therapist, Madigan Army Hospital, Tacoma, Washington

2:00 P.M. — 4:00 P.M. — UNDERSTANDING THE PATIENT'S EMOTIONAL REACTIONS TO DISABILITY AND TREATMENT—Herbert S. Ripley, M.D., Professor and Executive Officer, Department of Psychiatry, University of Washington School of Medicine, Seattle.

Questions will be posed by:

Ruth Cook, May T. Morrison Center for Rehabilitation, San Francisco

Martin Mundale, Elizabeth Kenny Institute, Minneapolis

Marcia Shaw, Detroit Orthopaedic Clinic, Detroit

5:00 P.M. — **Salmon Barbecue**

Friday, June 20

9:00 A.M. — 12:00 Noon — CURBSTONE CONFERENCES — Demonstrations by more than 20 physical therapists. A partial list of participants appears elsewhere in this issue.

ANY QUESTIONS? Ernst Fischer, M.D., Berta Bobath, Margaret Knott, Margaret Rood

CORRELATIVE SUMMARY OF TECHNICS, Ernst Fischer, M.D.

2:00 P.M. — 3:00 P.M. — ULTRASOUND — Justus F. Lehmann, M.D., Professor and Executive Officer, Department of Physical Medicine and Rehabilitation, University of Washington, Seattle; George Brunner, Department of Physical Medicine, University of Washington

3:30 P.M. — 5:00 P.M. — CONCURRENT SESSIONS —

Session A

STUDIES OF STRENGTH VARIATION THROUGH THE RANGE OF JOINT MOTION, Marian Williams, Ph.D., Associate Professor, Division of Physical Therapy, Stanford University; and Leon Stutzman, Research Associate, Department of Physical Therapy, Stanford University

Original Papers (Prepared and read by members)

Session B

MYOFASCIAL PAIN, John Bonica, M.D., Director, Department of Anesthesiology, Tacoma General Hospital, Tacoma, Washington.

PHYSICAL FITNESS: WHAT ARE WE FINDING? Ellen Waters, Assistant Professor, Department of Physical Education and Health Education, University of Washington

Original Papers (Prepared and read by members)

Conference Facts

Hotel

The Olympic, Seattle's nationally known hotel, occupies a solid square block in the hub of the city. Air conditioning provided by nature.

Rates

Single rooms	$7.00 to $15.00
Double Bedded Rooms for Two	$10.00 to $18.00
Twin Bedded Rooms	$13.00 to $20.00
Suites	$30.00 to $40.00

All rooms have combination tub-shower or shower.

Hotel Reservations

Reservations should be sent directly to the Hotel Olympic at least 30 days in advance.

Note: Reservations received after all sleeping rooms in the Olympic have been taken will automatically be assigned to one of two other designated hotels. The Olympic will not guarantee space for reservations received after May 15.

Those who wish to room together should send in only one reservation card indicating the number of persons to occupy the room. The number of minimum priced rooms is limited and the hotel will acknowledge reservations within a range dependent upon availability at the time of arrival. When single rooms are filled you will be assigned a double room at a reduced rate.

Registration

Active, Inactive and Foreign Probationary Members	$6.00
Student Members	$2.00
Nonmember Physical Therapy Students	$4.00
Nonmember Graduates of Approved Schools	$15.00
Members of Physical Therapy Organizations Affiliated with the World Confederation for Physical Therapy:	
Visitors	$6.00
Residents of this country	$15.00

Nonmembers will be requested to present credentials.

You are urged to register in *advance*. If you do not register in advance you *must* present your membership card at the Conference Registration Desk. Registration forms for advance registration will be found in your dues notice. Deadline for advance registration is May 15, 1958.

Exhibits

Exhibits Manager: Gordon M. Marshall, 30 West Washington Street, Chicago 2. Scientific Exhibit space is assigned by the American Physical Therapy Association.

Social Events (See page 272)

Film Theater

Members or organizations desiring to show movies, slides, or filmstrips at the Annual Conference may apply for inclusion in the program. Visual aids of special interest are related to subject areas of the scientific program: growth and development, neurophysiology, exercise technics, tests and measurement, emotional response to disability, ultrasound, myofascial pain and physical fitness.

Applications should be sent to the American Physical Therapy Association before May 1, 1958, and should contain the following information:

Title of film, slides, or filmstrip; Producer and/or distributor's name and address;

Technical data: black and white or color; sound or silent; film or slide size; running time of film, or number of slides and time needed to show them; year produced;
Name or organization sponsoring participation in film theater and of person who will be responsible for material.

The Program Committee will select for the Film Theater those films and slides which in its judgment will be of greatest interest to the audience, which best relate to subject matter, and which will fit into the time allotted.

Reserve Officers of the Army Can Earn Credit in Seattle

The Commanding General, U.S. Continental Army Command, has approved the awarding of retirement point credits for Army Reserve Officers who attend specified sessions of the American Physical Therapy Association Conference in Seattle in June.

Provision will be made for Reservists to register in the Spanish Lounge of the Olympic Hotel as required.

Military Physical Therapy Symposium of
The American Physical Therapy Association
Olympic Hotel, Seattle, Washington
15—20 June 1958
Military Chairman—
Capt. Dorothy Peterson, AMSC

The following sessions, by virtue of their military educational value, are included in the symposium and are authorized as military training assemblies. Reserve officers of the Army are therefore eligible to earn training and retirement point credits for attendance at the sessions indicated below providing such attendance at any session is for a period of not less than 2 hours and registration at each session is accomplished with the individual designated by the Commanding General to accomplish such registration. Not more than one credit can be granted for any single calendar day.

PROGRAM SESSIONS

Day Date Time

Monday, 16 June 1400

Neurophysiology a Physical Therapist Should Know (Ernst Fischer, M.D., Research Professor of Physiology, Medical College of Virginia)

Tuesday, 17 June 1430

Pathological Factors Which Limit Purposeful Movement
(Lawrence Knopp, M.D., Instructor in Neurosurgery, University of Washington School of Medicine) Panel Discussion

Wednesday, 18 June 1430

Lecture Demonstrations on Principles of Treatment and the Responses of the Patient

Thursday, 19 June 0900

Analysis of Motor Dysfunction and Planning for the Patient; Testing and Measurement; Purposes and Methods

Friday, 20 June 1400

Concurrent Sessions:
Ultrasound; Torque in Range of Motion; Myofascial Pain; Physical Fitness

Curbstone Conferences

On Friday morning, June 20, 24 physical therapists will demonstrate various facilitation technics. A partial list of participants follows:

Technics as taught by Berta Bobath, Principal, Western Cerebral Palsy Centre, London, England; and, in this country, by Sarah Semans, Division of Physical Therapy, Stanford University, will be demonstrated by:

Ishuan R. McCutcheon, Physical Therapist, Division for Cerebral Palsy, Crippled Children Services, Kern County Department of Public Health, Bakersfield, California;

Bernice Ringman, Supervising Physical Therapist, Crippled Children Services, State Department of Public Health, Los Angeles;

Sarah Semans, Instructor, Division of Physical Therapy, School of Medicine, Stanford University, Stanford, California;

Ellis Thompson, Senior Therapist for Physically Handicapped Children, Sunshine School, Arlington, California. Employed by State of California Department of Public Health, Crippled Childrens Services.

Technics as taught by Margaret Knott, Physical Therapy Director, California Rehabilitation Center, Vallejo, will be demonstrated by:

Rheta C. Adams, Associate in the Division of Physical Therapy, School of Auxiliary Medical Services, University of Pennsylvania, Philadelphia;

Alice Busch, Supervisor, Out-Patient Clinic, Kaiser Foundation Hospital, Vallejo;

Marjorie Ionta, Supervisor of Physical Therapy, Massachusetts General Hospital, Boston;

Elvera Guebert, Student, Short Term Course, California Rehabilitation Center, Vallejo;

Ed Rathjen, Self employed, San Jose, California;

Diane Toussaint, Supervisor of Gymnasium, California Rehabilitation Center, Vallejo.

Technics as taught by Margaret Rood, Professor, Department of Physical Therapy, University of Southern California will be demonstrated by:

Elizabeth M. Barnett, Candidate for Master's Degree, Department of Physical Therapy, University of Southern California;

Margaret Bryce, Graduate Student, University of Southern California;

Margaret Camp, Student, Short Term Course, California Rehabilitation Center, Vallejo;

Carol Bankson, Coordinator of Cerebral Palsy Program, Home for Crippled Children, Pittsburgh;

Elizabeth Fellows, Graduate Student, University of Southern California;

Vera Ford, Assistant Director, Department of Physical Therapy, Los Angeles Orthopaedic Hospital;

Eleanor H. Hansen, Supervisor, Physical Therapy Department, Hospital of the Good Samaritan, Los Angeles;

Carol Moyer, Director of Physical Therapy and Coordinator of Therapies, Wyoming Valley Crippled Children's Association, Wilkes-Barre, Pennsylvania.

What Is a Rotational Session?

The Wednesday afternoon session of the Conference Program will be unique in that the entire group attending Conference will witness three 45 minute lecture-demonstrations of the three concepts of treatment considered during the week. A general session would be too large to permit you to gain from the demonstrations so in order to accomplish the necessary division into three groups you will each receive a colored tag when you register. Members having tags of the same color will meet in the same room. You may exchange tags with someone else before Wednesday if you find a friend you'd like to be with.

How does it become a rotational session? You won't rotate but the speaker-demonstrators will. You will stay and they will come to you. This procedure should save time and avoid confusion.

Calling All Charter Members

Washington State Chapter has an enthusiastic nucleus of Charter Members of the APTA who look forward to meeting again with all other Charter Members during the 35th Annual Conference in Seattle, June 15-20. In January, 1957, the Washington State Chapter honored Elsie Child, Emily Griffin, Marguerite Irvine, and Karen Rynning. (See May 1957 issue of the *Review*, page 312.) These four members will be in Seattle to greet their old friends and many of our newer members will be on hand to meet those who founded our Association.

Plan to come and when you arrive be sure to sign up as a Charter Member. You will have all week to be together and it is planned to reserve special tables at the Annual Banquet on Tuesday evening in recognition of Charter Members who attend this Conference.

Conference Speakers

Lawrence M. Knopp, M.D., is Clinical Instructor in Neurosurgery, University of Washington, with his private practice in Seattle. He is also a member of the attending staff at King County Hospital and Children's Orthopedic Hospital, Seattle. A graduate of Southwestern College, Dr. Knopp received the degree in medicine at the University of Tennessee School of Medicine in 1951. Dr. Knopp is the recipient of several United States Public Health Service Awards including Pre-Doctoral Fellow, Post-Doctoral Fellow and Special Research Fellow. Dr. Knopp is the author of scientific articles published in *Surgery*, the *Journal of Neurosurgery*, and *Neurology*. On Tuesday afternoon, June 17, Dr. Knopp will discuss "The Clinical Recognition of Factors Which Limit Purposeful Movement."

Herbert S. Ripley, M.D., is Professor and Executive Officer, Department of Psychiatry, University of Washington School of Medicine; and Chief of Psychiatry Service, King County Hospital, Seattle. A graduate of the University of Michigan and Harvard Medical School (1933), Dr. Ripley's previous positions include Assistant Professor of Psychiatry, Cornell University Medical College. In 1949 Dr. Ripley received the Certificate of Training in Psychoanalytic Medicine from Columbia University's Psychoanalytic Clinic for Training and Research. Organizational memberships held by Dr. Ripley include the American Psychiatric Association, American Psychoanalytic Association, and the American Psychosomatic Society. Dr. Ripley's extensive bibliography of his published work includes many scientific articles based on observations of service personnel during war time, the interrelationships of the psyche and the soma, and the effects of treatment by the administration of hormones. Of special interest to physical therapists is "Personality Factors in Patients with Muscular Disability" published in the *American Journal of Psychiatry* in May, 1943. Dr. Ripley has also reported on "Depressive Reactions in a General Hospital," published in the *Journal of Nervous and Mental Diseases*, June 1957. "Understanding the Patient's Emotional Reactions to Disability and Treatment" will be presented by Dr. Ripley during the Thursday afternoon session. Following his lecture several physical therapists will pose problems for Dr. Ripley's discussion.

Marcia Shaw, Director, Therapy Coordination, Detroit Orthopaedic Clinic, Detroit, is a graduate of McGill University and received her physical therapy education at Harvard. Miss Shaw's previous positions include staff physical therapist, Children's Hospital, Boston; and Chief

Physical Therapist, and Superintendent, Sigma Gamma Hospital School, Mt. Clemens, Michigan. Having special interests in poliomyelitis and cerebral palsy, Miss Shaw has completed several short term courses related to these subjects and rehabilitation. She is the author of a booklet on cerebral palsy. Following Dr. Herbert Ripley's presentation on Thursday afternoon, June 19, Miss shaw will present a problem for Dr. Ripley's discussion.

Justus F. Lehmann, M.D., Professor and Executive Officer, Department of Physical Medicine and Rehabilitation, University of Washington, is a graduate of Johann Wolfgang Goethe University, Frankfort, Germany, having received the doctor of medicine degree in 1945. Dr. Lehmann was a member of the faculty of the University in Frankfort and at Max Planch Institute of Biophysics in Frankfort. After coming to the United States he studied in the Graduate School of the University of Minnesota from 1951-1955. After serving as a fellow in Physical Medicine at the Mayo Clinic in Rochester, Minnesota, Dr. Lehmann was appointed Associate Director of Physical Medicine and Rehabilitation at Ohio State University until 1957 at which time he assumed his present position. Dr. Lehmann is a member of the Biophysics Society, the Congress of Physical Medicine and Rehabilitation, and other professional organizations. The author of publications on the subject of ultrasound, Dr.

Lehmann will present "Basic Principles of the Therapeutic Application of Ultrasound" during the Friday afternoon session of the Conference program.

George D. Brunner is Director, Division of Physical Therapy, University of Washington. A

graduate of Miami University, Mr. Brunner received the certificate in Physical Therapy from D. T. Watson School of Physiatrics. His previous physical therapy positions include service at Children's Hospital, Akron, Ohio; and Christ Hospital, Ohio State University; and Instructor, Department of Physical Medicine and Rehabilitation, University of Ohio. Mr. Brunner will read a paper, "Can Ultrasound be Used in the Presence of Surgical Metal Implants? An Experimental Approach," in conjunction with Dr. Lehmann's presentation on ultrasound.

John J. Bonica, M.D., is a graduate of New York University and in 1942 was awarded the doctor of medicine degree by Marquette University School of Medicine, Milwaukee, Wisconsin. Dr. Bonica, a Diplomate of the American Board of Anesthesiology, a Fellow of the American College of Anesthesiologists, and a Fellow of the International College of Anesthesiologists, serves as Senior Consultant in Anesthesiology to a number of hospitals in Tacoma, Washington. He is Director of the Departments of Anesthesiology at Tacoma General Hospital and Pierce County Hospital in Tacoma. Among Dr. Bonica's teaching appointments are Consultant in Anesthesiology, and Clinical Associate Professor, Department of Anatomy, University of Washington, School of Medicine. A member of numerous professional societies, Dr. Bonica also serves on the editorial boards of several journals of anesthesiology. From an extensive bibliography of his publications, Dr. Bonica's work of interest to physical therapists includes the book, *Management of Pain*, published in 1953 by Lea and Febiger, Philadelphia. "Myofascial Pain" will be Dr. Bonica's subject during the Friday afternoon session of the Conference program.

Marian Williams, Ph.D., is a graduate of Scripps College and received the master of arts degree and doctoral degree at Stanford University. Dr. Williams, Associate Professor, Division of Physical Therapy, Stanford University, has specialized in functional anatomy. Prior to her affiliation with Stanford University, Miss Williams was a staff therapist at the Carrell-Girard Clinic, Dallas, Texas; and Children's Hospital, San Francisco. Author and co-author of several scientific articles, Dr. Williams is also co-author of *Muscle Testing* published in 1946, revised in 1956; and *Therapeutic Exercise in Body Alignment and Function* published in 1957, W. B. Saunders, Philadelphia, being the publisher of both books. Dr. Williams with Leon Stutzman will present "Variation in Muscle Force (moment) through the Range of Joint Motion" during the Friday afternoon session in Seattle.

Leon Stutzman, Research Associate, Department of Physical Therapy, Stanford University, is a graduate of the University of Wisconsin and received the master of arts degree in physical

therapy at Stanford in 1953. Mr. Stutzman's previous positions include Assistant Chief Physical Therapist, Portland Rehabilitation Center, Portland, Oregon. Other than his present work at Standford, Mr. Stutzman is self employed in Monterey, California. During the Conference program in Seattle, Mr. Stutzman will share time with Marian Williams, Ph.D., in the presentation of "Variation in Muscle Force (moment) through the Range of Joint Motion."

Seattle Social Events

Mixer—Banquet—Bar-B-Q

The Washington State Chapter is determined to out-do all who have produced conferences, the praises of which are still being sung. Remember the last two western Conferences—Los Angeles and Colorado? Washington Chapter members have been working hard and long to provide entertainment with appeal for all members.

The first social event will be the Mixer to be held in the Olympic Bowl on Sunday evening, June 15, from 5:00 P.M. to 8:00 P.M. Come, meet and make friends. There will be background music and it is planned to introduce at this time the candidates for the 1958 elections. Student members attending Conference will also be recognized during the Mixer in order that they may meet each other early in the week.

On Tuesday evening members will gather in the spacious Spanish Lounge to greet the Board of Directors and will then proceed to the Spanish Ballroom for the Annual Banquet. The Chapter promises top-flight entertainment guaranteed to be light and amusing. Washington State members are keeping a secret about the decorations and favors but we are assured that the atmosphere of the Great Pacific Northwest will abound starting with Dungeness Crab Cocktail Supreme. In keeping with the Association's tradition we hope that all will join together in this opportunity to dine with friends, old and new, and our guests.

The Salmon Bar-B-Q planned for Thursday evening will be a unique and exciting affair held at the Bellevue Elks Lodge. Through the courtesy of the Washington State Elks there will be an hors d'oeuvre table with delicacies produced in the state—smoked clams, kippered salmon, blue cheese, and others. You are bound to enjoy Columbia River salmon barbecued by Indians from the Makah tribe and a group of Indian dancers will perform.

How will we get to the Salmon Bar-B-Q? Gray Line Buses will transport all of us across the Floating Bridge to Bellevue—a 30 minute ride leaving the Olympic Hotel at 5:30 P.M. After the Bar-B-Q there will be a cruise back to Seattle via Lake Washington, Ships Canal, the Government Locks, and Puget Sound.

The Washington State Chapter's *planning + work = a wonderful time* for all. The Chapter is host at the Mixer—no cost to you. The Banquet and Bar-B-Q, two varied and enjoyable experiences, are available for a combined rate of $10.50. Send your checks and reservation forms now. You will have fun!

Potlatch—Totem Talk—Apples

The Chinook Indians had a word for feasting and gift giving—potlatch—so the Washington State Chapter greets you and gives you the Explorers' Potlatch on Sunday from 5:00 P.M. to 8:00 P.M.

Totem Talk, the Conference daily paper, could be "tall talk" but will give you the news and the latest word on Conference activities.

You have all enjoyed Washington State's delicious apples but for your first in Washington State your hosts have arranged for an "Apple Break" at the close of the Opening Session on Monday.

Washington State Chapter gives, you come, you get!

Let's Explore

....and see America first

Just like the early settlers in their covered wagons a century ago, you'll soon be traveling these same trailways by facilitated means. The abundance of recreational facilities is yours to enjoy in the scenic grandeur of the Evergreen State. You may rediscover the natural beauty of the countryside, the charm and spirit of its towns and cities, and the friendliness of its citizens.

Should you be travelling via Highway 10, you'll enter Spokane, the metropolis of the rich Inland Empire of the Pacific Northwest, magnificently situated at the Falls of the Spokane River. Its wide boulevards and scenic drives, buildings of late design, gracefully arched bridges, and many splendid parks and playgrounds add to its attractiveness. Spokane Falls is in the heart of the business district.

A drive northeast through rolling plains, dotted with bull pines, will lead you to Mount Spokane State Park and up Mount Spokane—a popular winter sports area. The park consists of 24,240 acres. Here are camping grounds, community kitchens, trails, and fishing for your enjoyment.

Surrounding Spokane is Riverside Park, and you must also enjoy Deep Creek Canyon, a geological wonderland with picnic facilities.

To the north is the Kansku National Forest—a great recreational area which is easily accessible from Spokane. The long, sunshiny summers are an invitation to vacationing at lakes within easy driving distance. Every June sees an exodus of thousands to resort hotels, cabins, and tent cities. The many lakes, open pine forests and mountain wilderness offer a variety of recreations, such as swimming, hiking, motor boating and mountain climbing in summer—hunting deer, bear, and game birds in the fall and spring—skiing, tobogganing, and skating in winter.

Highway 2 leads on through millions of acres of fertile wheat and grain land to the Columbia River basin. Here millions of acres of desert and arid lands, due to irrigation, have become productive farmlands.

On to the Grand Coulee Dam and you will see the "mightiest man-made structure in the world," rising 550 feet above bedrock and as high as a 46 story building. Impounding the mighty waters of the Columbia River, the immense project forms Lake Roosevelt, stretching for 151 miles. This man-made lake is becoming a vast recreational area as well as a source of irrigation to the Columbia River Basin. An impressive volume of water hurtles over the giant spillways and down the face of the dam, forming a misty cataract 330 feet high and twice the height of Niagara Falls. A wide concrete highway surmounts the dam, enabling one to get a realization of the immensity of the project. At Vista House lectures are given explaining highlights of the vast construction program. Sightseeing trips may be made to the powerhouse for guided tours under the dam, and a delightful 47 mile boat trip is available on the lake in a modern cruiser. A national recreation area surrounds this dam.

On the south end of the Grand Coulee is the magnificent Dry Gorge which was once the course of the Columbia. This immense chasm, 52 miles long and 1 to 5 miles wide, has walls of rock towering 1,000 feet in places and showing at least 7 lava flows. Interesting is Dry Falls State Park where the stream once plunged 400 feet. It is four miles west of Coulee City. A few miles beyond, on the shores of Blue Lake is Sun Lakes State Park with a great forest of igneous fossil trees. Here you will find camping facilities, trails, bathhouses, fishing, swimming and boating. Travelling south will bring you to a highly alkaline body of water with no outlet. This is Soap Lake with several resorts on its southern shore.

Highway 10 will take you to Wenatchee known as the "Apple Capital of the World," which is centered in the Wenatchee valley at the foot of the Cascade Mountains. Of great interest are the beautiful Ohme gardens, where there is a fine panoramic view of the valley. This city is a gateway to a vacation paradise where fishing, hunting, camping, hiking, mountain climbing, skiing, and snowshoeing may be enjoyed. Two of these places are to the north—Wenatchee Lake State Park, and the Wenatchee National Forest.

An agricultural and fruit-producing region leads you to the foot of beautiful Lake Chelan. Many resorts surround the lake which winds 55 miles among cliff walls and glacial peaks, and provides a perfect vacation rendezvous with ideal water sports and recreational activities. On the distant shore, reached by boat, are lovely recreational facilities. Deer, pheasant, quail, and game are plentiful in season. To the north is the region of the Okanogan National Forest which also has well developed recreational areas.

There are several lower ridges called "passes" crossing the Cascade Mountain Range to Western Washington. Leaving Wenatchee you may follow

Olympic Mountain Range

Stevens Pass (4061 feet elevation), 80 miles to the Northeast of Seattle. North of Stevens Pass is wild country where very few people live. Stevens Pass has a ski lodge with dormitory, seven ski tows, two chair lifts, and ski rentals. The season is open from November 15 to May 15.

Also from Wenatchee, via lovely Bluett Pass, traveling south in the Wenatchee Mountains through barren and rocky country, you will arrive at Gingko Petrified Forest State Park. This park is composed of 7,000 acres, and is a reserve that contains one of the biggest petrified forests on our continent.

The Bluett Pass route ends at Highway 10 which westwardly leads to Snoqualmi Pass, elevation only 3,004 feet. At the summit, here again, is a ski lodge and a beautiful ski area open from November to April with chair lifts and ski tows.

Highway 10 eastwardly takes you to Yakima, once a sagebrush wilderness, where now miles of valuable orchards and farm lands lie.

Going west on Naches Pass, following Tieton River, winding through a deep narrow valley, heavily wooded, you may spot a sportsman enjoying fishing in the swift stream. Further on are a number of forest camps maintained by the National Forest Service for public enjoyment. This very scenic highway leads you to the Northeast (Sunrise) entrance of Mount Rainier National Park. Here you will find a museum and may take nature walks. Illustrated lectures are given by rangers and naturalists. Recently the new Stevens Canyon Road has been opened, surrounding this grand mountain and connecting the East side with the West. The Park centers around the tall mountain for which it is named. Its wild flowers, carpeted meadows, forested slopes, sparkling lakes, tumbling waterfalls, and majestic glaciers comprise 378 square miles of superlative scenery. The fourth highest peak in the United States (14,410 feet), Mount Rainier is an inactive volcano, covering one-fourth of the park area. Twenty-six glaciers cover almost 40 square miles and constitute the largest glacier system in the country. On the south side of Mount Rainier huge evergreens line the highway and the great Nisqually glacier flows down the mountain to the roadside. Flowers grow to the very edge of the glaciers and the

meadows are strikingly beautiful in late June and early July, and again in August with the different seasonal wild flowers in bloom. Lakes and streams provide good trout fishing at lower levels. Raccoon, bear, elk, and often mountain goat, may be seen. Mountain climbing is popular, but for safety precaution, climbers aspiring to the summit must register with the ranger before leaving and upon returning. The Emmons and Nisqually glaciers are best known and most easily visited. The heaviest snow fall comes at elevations of 5,000 to 10,000 feet as the summit is often above the storm clouds. Guided trips are conducted to places of interest. There are many short trails and also one day hikes. The long trails may be taken by horseback. Many campsites and shelter cabins, as well as hotel accomodations, are available. This is a paradise for the photographer. Skiing facilities are available during the winter.

The thousands of miles of waterfront which begin in the extreme southwest corner of our state, and extend along the ocean beaches into Puget Sound, provide many kinds of recreation. Located in Southwestern Washington is North Beach Peninsula. More than 28 miles in length, it is the largest unbroken beach in the world. In this area is the Twin Harbors State Park, known for its surf swimming and clam digging and fishing.

Then we come to Olympic National Park which is the dominating feature of the Olympic Peninsula. The broken shoreline is washed by the Pacific, Strait of Juan de Fuca, and Puget Sound. Within a few miles of the sea are extremely rugged mountains. Lofty Mt. Olympus (7,954 feet) is the highest, and again some large glaciers flank the snowy peaks. In the lower valleys of the western slopes are the unsurpassed examples of the unique "Rain Forests." Wild flowers in riotous color carpet alpine meadows, and hidden lakes, glistening water-falls, and deep-forested valleys traversed by sparkling streams (well stocked with fish) combine to make this land of unusual interest and surprising beauty. There are vast stands of Douglas fir, western hemlock, western red cedar, mountain juniper and silver and alpine fir in the area. This is a wildlife sanctuary, and blacktail deer, black bear, mountain goat, an occasional cougar, and Roosevelt elk may be seen. Here you will also find two hot springs, and recreation includes fishing, hunting, boating, swimming, hiking, and camping.

Shaped like stepping stones between Vancouver Island and Washington, are the amazing San Juan Islands, 177 volcano peaks within an area of 30 square miles. Here are year-round attractions to the vacationist, yachtsman, fisherman and hunter. The larger islands have picturesque fishing villages, towns, and resort areas. Beautiful Moran Park with all its facilities, including boating, is situated on Orcas Island.

Third highest peak in Washington, Mount Baker is the center of a National Forest east of the city of Bellingham. Perpetually snowcovered, Mount Baker's recreational area is a paradise for sportsmen, and mountaineers, both in summer and winter. It is an outstanding winter sports area that has all the rental equipment for the skiier. The annual Heather Cup Ski Tournament is held around July 4.

From this park area you pass through Bellingham and Mount Vernon, travelling through the Skagit Valley, a wealthy dairy and farmland. Crossing onto Whidbey Island by way of the Deception Pass Bridge is Deception Pass Park. Passing through luxurious fir, cedar, and alder groves, here and there are glimpses of a lake. The park has six recreational areas, with five swimming pools, three of which are salt water.

The Government of the United States has recognized the value of Washington as a vacation land by setting aside two great National Parks, Mount Rainier National Park and Olympic National Park, and Washington State has made an effort to space its 44 State Parks in such a way that no one will have to drive very far to enjoy a State Park. These are more likely to be located away from mountains because a great many beautiful spots are already National Park and National Forest Areas. All State Parks have water and picnic facilities; most have public kitchens and overnight camping areas with trails to explore. Parking areas and concessions where supplies may be purchased are available. Besides these there are thousands of resorts privately owned. Many are located in places of great scenic beauty. They offer fishing, hiking, horseback riding, and almost every kind of attraction to the person looking for a good time.

Whatever you wish in the way of pleasure or recreation you can find in Washington State. Here you can explore to your heart's content.

University of Pennsylvania
Alumni Punch Party

Monday, June 16

4:30 to 6:30

Volunteer Help for Physical Therapy Department

Physical Therapy Guilds

Katherine Fewkes

Wenatchee, Washington, Apple Capital of the World, is proud to have a well equipped physical therapy department in its 80 bed Deaconess Hospital, which is operated on a nonprofit basis. The community of Wenatchee has a population of 25,000 and is the physical therapy center for North Central Washington. During the polio epidemic in 1952, the P. T. department of the hospital was small and inadequately equipped. The hospital could not afford all the additional equipment it badly needed, so a small group of women aware of the need began organizing, with guidance from William M. Smith, physical therapist of the hospital at that time, and his wife, Helen.

The first Physical Therapy Guild was formed in September 1952. Within the first year the membership grew to approximately 75 members which were divided into five separate guilds, A-B-C-D-E. Dues are $1.00 per year. Their work is coordinated through monthly meetings of "Council," the guilds' governing body, composed of officers and committee chairmen from each of the five groups. The Physical Therapy Guilds are also members of the Women's Auxiliary as are other groups working for other departments of the hospital.

As a money making project the guilds decided to open a Gift Bar in the hospital. Space was provided, and opening day was Sept. 10, 1953, only a year from the beginning of the organization. It has continued very successfully. Selling at the Gift Bar are baby items, pillow slips, luncheon sets, tea towels and numerous other items, hand-made by guild members and friends. Also stocked are magazines, newspapers, candy, greeting cards, stationery, and personal items. It is open during afternoon and evening visiting hours, with volunteer saleswomen on a schedule rotated among guilds. The Gift Bar chairman is assisted by the following chairmen: Pricing, Magazines, Hand-Work, Sundries and Saleslades.

In the past four and one-half years, 7,102 hours of sales service has been volunteered, about 1,294 each year. Through the Women's Auxiliary an emblem is given for 25 hours, and a pin for 100 hours. Sales through February, 1958, have totaled $13,531.00.

First proceeds donated to the hospital were $300.00 for remodeling the gym and improving the appearance of the physical therapy facilities; then a large Hydrocolator Unit, $368.00; bicycle, $66.00; Coolerator, $257.00; a Medcolator Electrical Muscular Stimulator, $67.00 with a trade-in; Dallons Ultrasonic Unit, $718.00; and Paraffin Bath, $273.00. Equipment purchased totals $1,749. In addition, $1,500.00 has been deposited in bank savings to help with future expansion when a new wing is added.

Friends and civic organizations have donated $423.00.

The guilds operate the Gift Bar and also have several other activities. Cookies are baked each month and presented individually wrapped to the physical therapist for distribution to patients. So many children were receiving treatment during the polio epidemic that a Christmas Party including Santa Claus was arranged in 1953, and each year since, stockings filled with toys and treats are prezented at the Physical Therapy Department. In the spring of 1954 members assisted the hostesses at the State Physical Therapists Annual Meeting held in Wenatchee and furnished ceramic apple favors.

The Childrens Foundation groups furnished and decorated a children's playroom in 1956, assisted by a monetary contribution of $312.00 from the Physical Therapy Guilds. Ten dollars has been sent to the Washington State Chapter's Conference Fund for 1958, and members are presently busy making over 600 ceramic apples to be used as favors at the Conference in Seattle.

Splendid relations have been maintained; the hospital distributes to each patient admitted the guild's leaflet, "We Do Not Walk Alone," which explains physical therapy and invites patronage of the Gift Bar.

The activities of these Physical Therapy Guilds, including tours of the physical therapy department and their contact with the general public, has had an excellent educational value in making people aware of, and helping them to understand what physical therapy really is—the benefits it offers not only for polio but many other conditions.

Corresponding Secretary, Physical Therapy Guilds, (Charter Member)

Self Employed Section

Vice Chairman
JAMES B. MCKILLIP, JR.

ROBERT G. DICUS, *Chairman*

Corresponding Secretary
THOMAS WELCH

Treasurer
BERTRAM L. GUSTAFSON

Recording Secretary
CARMEL HYBARGER

Sunday, June 15

Pacific Evergreen Room

8:00 A.M.	Executive Committee Breakfast
8:30 — 9:30 A.M.	Registration in Rex Room
9:00 A.M.	Meeting called to Order — Welcome — Introduction of Section Officers and APTA Officers in attendance — James B. McKillip, Jr., Program Chairman
9:15 A.M.	History of the Section — Robert G. Dicus
9:30 A.M.	Why Self Employment — Robert Teckemeyer
9:45 A.M.	Your Professional Organization and Ethics — Kathryn S. Bier
10:00 A.M.	Questions directed to the first three speakers.
10:15 A.M.	Announcements — Nominations for Officers from the floor — Charles Magistro
10:30 A.M.	Choosing your Location — Alma Maga
10:45 A.M.	Medical Records — Joseph Breuer
11:00 A.M.	The Economics of Self Employment — Harold Feldman
11:15 A.M.	Questions directed to the last three speakers.
11:30 A.M.	Open Discussion
12:15 P.M.	Luncheon — Olympic Bowl
2:00 — 4:00 P.M.	Business Meeting — Rex Room
Monday, June 16	Meeting of the new Executive Committee and other committees
Tuesday, June 17	
12:00 Noon	Luncheon, if desired

All applications for membership in the Self Employed Section must be approved no later than the start of the business meeting in Seattle, Washington, June 15, 1958. This means that they must be in the hands of the corresponding secretary,

Thomas Welch
837 Fifth Street
Santa Rosa, Calif.

No later than 12:00 noon, June 15, 1958.

All Association members are cordially invited to attend the morning and afternoon session of the Self Employed Section meeting. If luncheon is desired, reservations must be made in advance with the treasurer, Bert Gustafson, 609 Sutter Street, San Francisco, or at the Self Employed Section Registration desk on the basis of first come, first served. Although the business meeting will be open to the general membership, participation will be limited to members of the Section.

American Hospital Association–American Physical Therapy Association Institute for Physical Therapists

The next Institute for Physical Therapists co-sponsored by the American Hospital Association and the American Physical Therapy Association will be held at the Bellerive Hotel, Kansas City, Missouri.

The Institute Planning Committee composed of members of the Western Missouri and Kansas Chapters of the American Physical Therapy Association is already hard at work and has met with representatives of the American Hospital Association to plan an informative and interesting Institute. Program details will be sent later, but plan now to attend and reserve the dates of Nov. 10–14, 1958.

Public Health Section

Vice Chairman
PATRICIA ADAMS

CLARA ARRINGTON, *Chairman*

Secretary
ANNA SWEELEY

Treasurer—WILHELMINA WERKHOVEN

Sunday, June 15

8:45 A.M. — 5:00 P.M.	**Colonial Room**
8:45 A.M.	Registration for Public Health Section Meeting
9:15 A.M.	*Panel*
	Carolyn Bowen, Moderator
	William King, Manager, Mobile Therapy Unit Program, to discuss the "Development, Organization, and Administration of Elks Mobile Therapy Program."
	Erma C. Myers, to discuss "The Program and Our Relation to Other Agencies Providing Services."
	Lois Radomske, to discuss "Equipment—Standard and Improvised."
	Elks Mobile Therapy Unit Program Moving Picture Film in color.
	General discussion of the program to provide listeners an opportunity to ask questions, etc.
10:30 A.M.	Intermission
10:45 A.M.	General Discussion
1:30 P.M.	*Panel*
	Philip A. Austin, Head, Hospital and Nursing Home Section
	Carolyn Bowen, Physical Therapy Consultant, Maternal and Child Health and Crippled Children's Services Section, Division of Child Health Services
	Elizabeth Tucker, Nursing Home Consultant, Hospital and Nursing Home Section
	Evelyn Bengson, Occupational Therapist, Hospital and Nursing Home Section
	Vera H. McCord, Hospital Services Consultant, Hospital and Nursing Home Section
3:00 P.M.	Intermission
3:15 P.M.	Discussion
4:30 P.M.	Business Meeting

Following the afternoon program, a short business meeting for members of the Public Health Section will be held. Any member of the American Physical Therapy Association holding a position concerned with physical therapy in a public health setting is eligible for membership in this Section. Association members interested in becoming members of this Section should apply for membership to Patricia Adams, Vice Chairman, Public Health Section, University of Connecticut School of Physical Therapy, Storrs, Connecticut. When making application please forward the following information: full name, place of employment, mailing address, physical therapy school and year of graduation. The annual dues are $1.00, payable to The Public Health Section, American Physical Therapy Association, and should accompany application.

The Committee on Resource Materials of the Public Health Section of the APTA asks for your help in providing material for discussion and display at the next national convention. Pictures of improvised home equipment, preferably 5 x 7 for clarity and uniformity; samples of written instructions for exercises given in the home, or regimes set up for home treatment routines; and written plans or methods of orienting physical therapists in to public health work are requested.

Materials should be sent to:

Hildegarde Kummer
511 W. College Ave.
Marquette, Michigan

before May 20, 1958.

Workshop in Expectant Parent Education

Mrs. Mabel Lum Fitzhugh, APTA member, who has been a pioneer in expectant parent education in this country, will present a workshop of exercises and ideas that help expectant mothers toward a more relaxed and happier childbirth experience. Her exercises are used in many expectant classes all over the country, and her workshops are well known.

The Association for Childbirth Education, YWCA, Seattle, is privileged to sponsor the intensive workshop which will be held on Saturday, June 21, the day following the national physical

therapy Conference. The fee is $5.00; the place, the YWCA, Fifth and Seneca, Seattle.

This is an appropriate field for physical therapists, with their knowledge of exercises and interest in relaxation, and a rewarding experience is promised to those who attend.

For reservations, send remittance with name and address to the Association for Childbirth Education, YWCA, Fifth and Seneca, Seattle 1, Washington.

Columbia University Graduates

The Physical Therapy Alumni Association of Columbia University is planning a "reunion luncheon" for Wednesday noon, June 18, 1958, at the Conference in Seattle. All graduates and staff of the University are most welcome. Further details will be posted at the Conference. We are looking forward to renewing friendships and making new acquaintances.

Section on Education

Vice Chairman
RUTH COOK

Treasurer
CORRINE Q. WAY

MARGERY WAGNER, *Chairman*

Recording Secretary
MARGARET KNOTT

Corresponding Secretary
CARMELLA GONELLA

Sunday, June 15 — **Williamsburg Room**

9:00 A.M. — 10:00 A.M. — VISUAL AIDS RELATING TO PHYSICAL THERAPY
Speaker: Helen J. Hislop, Graduate Student, University of Iowa

10:00 A.M. — 10:30 A.M. — Coffee Break

10:30 A.M. — 11:30 A.M. — INTRODUCTION TO COMMUNICATIONS
Speaker: Burton J. Ballard, Public Relations Director, State Bar of California

11:30 A.M. — 12:00 NOON — Break

12:00 NOON — 2:00 P.M. — Luncheon and Business Meeting

2:00 P.M. — 4:00 P.M. — WORKSHOP IN COMMUNICATIONS — PROBLEMS RELATING TO PHYSICAL THERAPY INSTRUCTION AND CLINICAL SUPERVISION
Directors: Mr. and Mrs. Burton J. Ballard

Monday, June 16 — **Pacific Room**

9:00 A.M. — 12 NOON — Trading Post — by appointment, or not; for conferences between two or in groups. Your opportunity to talk with others with similar interests! Trade your ideas, materials, and information!

The Trading Post

The proposed "Trading Post" to be held during the Annual Conference in Seattle on Monday morning, June 16, is an innovation for the Section, and it is planned especially for those members who wish an opportunity to meet informally with others. It is answering that frequently expressed wish of having a place and time to exchange ideas. Reply cards are being sent to all Section Members for indication of their interests. Suggested topics for discussion groups at the "Trading Post" are: group dynamics in clinical situations, technics of student counseling, in-service training programs, a summary of APTA-OVR Institute. Please fill in and return your reply card as indicated. There will also be an exhibit of materials used during the clinical experience of physical therapy students, both those developed by the school and by the clinical center.

The election of three officers will take place at the business meeting of the Section on Education, which will be held at the Annual Conference in June at Seattle.

The Nominating Committee composed of Helen Kaiser, Doris Porter, and Adelaide L. McGarrett, chairman, will present the following slate:

Chairman	— Margaret Bryce
Treasurer	— Mildred Heap
Corresponding Secretary	— Virginia Whitfield

The Rules of Government of the Section provide that additional nominations may be made from the floor.

MARGERY L. WAGNER, *Chairman*
Section on Education

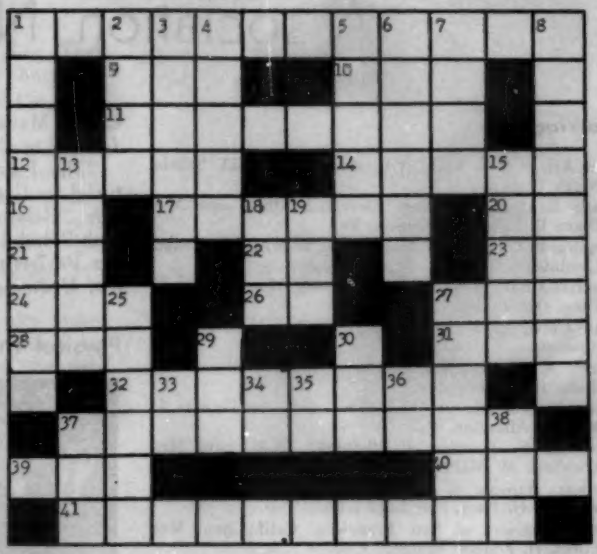
University of Wisconsin Alumni Luncheon

Renew Old Acquaintances

Plan to attend the University of Wisconsin Alumni Luncheon in Seattle, Wednesday noon, June 18.

Details will be announced later.

Your Conference Crossword Puzzle



Horizontal

1. The subject of much discussion at the Seattle conference.
9. Japanese statesman.
10. Anterior surface of thighs, sitting position.
11. Methods of procedure.
12. You'll find this fellow in Seattle stores too—always willing to relieve you of your hard-earned money.
14. As you say "good-by" to Seattle, your eyes may well be in this condition.
16. Preposition.
17. A tall narrow locker or box in which to keep bows and arrows dry.
20. Hydrogen ion concentration.
21. A beautiful maiden beloved by Zeus.
22. A sloth.
23. Exclamation of pain.
24. An exclamation (two words).
26. Think of this next time you blow your top (abbr.)
27. An abbreviation used in some physical therapy clinics to mean both upper extremities.
28. National Security Act.
31. It is (contr.)
32. Division of dynamics dealing with forces acting on bodies.
37. Condition often treated by physical therapy (general term).
39. Precious stone.
40. Range of Motion (abbr.)
41. Great state of _____

Vertical

1. Act of performance of any duty.
2. Quote.
3. Pertaining to a tubular passage.
4. You can see these in Seattle—why go to the Panama Canal?
5. Alimentary substances.
6. A thriving metropolis in Washington, 30 miles south of Seattle.
7. Prefix meaning same.
8. Seattle is located in the Pacific _____
13. This you will find in any occupational therapy clinic. (pl.)
15. We hope the weatherman will turn it off for a few days.
18. Try to get one on a rainy night.
19. The magnitude of these increases in stenographic spread. (sing.)
25. City in central Washington.
27. When in France in '59, try one of these for that glass of wine.
29. If you can say word one in Spanish, you're in!
30. Nothing.
33. Form of verb "to be".
34. "How do I love thee?" wrote _____ (abbr.)
35. Musical note.
36. Comme ___, comme ça.
37. Look for this in the early morning in Seattle.
38. Yonder (poetic).

Answers to this crossword puzzle will appear in the June issue of the *Physical Therapy Review*.

Coming Meetings

May 14-16	Upper Midwest Hospital Conference, Minneapolis
May 14-16	Southeastern Hospital Conference, Hotel Fontainbleu, Miami Beach
May 21-23	Middle Atlantic Hospital Assembly, Convention Hall, Atlantic City
June 9-13	American Nurses Association, Convention Hall, Atlantic City
June 15-20	American Physical Therapy Association, Olympic Hotel, Seattle
June 15-20	American Society of Medical Technologists, Municipal Auditorium, Milwaukee
June 18-22	American College of Chest Physicians, Fairmont Hotel, San Francisco
June 23-26	Catholic Hospital Association, Atlantic City
June 23-27	American Medical Association, San Francisco

Association News

Marriages

Jane Ast, of New York, N.Y., now Mrs. Jane A. Schein, North Bergen, N.J.

Diane Benjamin, of East Cleveland, Ohio, now Mrs. Diane B. Baker, Alexandria, Va.

Virginia R. Carr, of Brighton, Mass., to Austin J. Jordan, Cambridge, Mass.

Lorraine Chun, of Berkeley, Calif., now Mrs. Lorraine C. Fong, Oakland, Calif.

Jean Craig, of Haddonfield, N.J., now Mrs. Jean C. Rosenstein, Columbus, Ga.

Nancy A. Fix, of Wilmington, Del., to Ambrose DeBoda, Jr., Wilmington.

Gwen M. Forsyth, of Wilmington, Del., to Thomas L. Meglen, Abington, Pa.

Elizabeth S. Hanson, of Plainfield, N.J., now Mrs. Elizabeth M. Maltby, Plainfield.

Verdeen Hanson, of Salt Lake City, Utah, now Mrs. Verdeen H. Lucy, Salt Lake City.

Eileen Harmer, of San Francisco, Calif., now Mrs. Eileen H. Zellers, Tiburon, Calif.

Janis R. Hartell, of Plattsburg, Mo., to Myron E. Click, Monroeville, Pa.

Pauline Hawkinberry, of Marquette, Mich., now Mrs. Pauline H. Hultgren, Marquette.

Mary Henry, of Charlotte, N.C., now Mrs. Mary H. Galphin, Matthews, N.C.

Susan Johnson, of Oshkosh, Wis., to Robin Vaight, Oshkosh.

Anne M. Kirkpatrick, of Cambridge, Mass., now Mrs. Anne K. Vallely, Cambridge.

Inger E. Krosby, of Warm Springs, Ga., now Mrs. Inger K. Ford, Fort Knox, Ky.

Helen P. Moore, of Augusta, Ga., to Marvin S. Brinn, Augusta.

Ruth M. Pasquinelli, of Denver, Colo., to Addison M. Bowman, III, Denver.

Shirley Prada, of Durango, Colo., to Philip R. Craig, Durango.

Janice J. Robbin, of San Mateo, Calif., now Mrs. Janice R. Judd, Redwood City, Calif.

M. Jane Scales, of Madison, Wis., to F. J. Langer, Madison.

Margaret Shellestad, of Beaumont, Tex., to Norman L. Williams, Beaumont.

Patricia A. Short, of Camp White, Ore., to James M. Thorniley, Talent, Ore.

Ann L. Skovira, of Jessup, Pa., to Francis McGuirk, Jericho, N.Y.

Gayle A. Turner, of Ferndale, Mich., now Mrs. Gayle T. Davidson, Cheyenne, Wyo.

Members' Publications

Erbert F. Cicenia is co-author with Morton Hoberman, M.D., of an article, "Crutches and Crutch Management," published in the *American Journal of Physical Medicine*, December 1957.

"The Future of Physical Medicine," an editorial by Catherine Worthingham, carries a subtitle, "Relations to Other Professions Concerned with Rehabilitation," and appeared in the December 1957 issue of the *American Journal of Physical Medicine*.

Physical Therapy Legislation in Kentucky

Governor A. B. Chandler signs the Physical Therapy Practice Act, to create a State board to license physical therapists in Kentucky. Behind the Governor, from left, are Lawrence E. Wheeler, Lexington, Vice-President of the Kentucky Chapter of the American Physical Therapy Association; Mary E. McDonnell, Louisville, legislation chairman; Senator John Anggelis of Lexington, sponsor of the bill; Melvin G. Carson, II, Fern Creek, President of the Kentucky Chapter; Representative Eulick Walsh, Louisville, co-sponsor of the bill; and Mrs. Lucy S. Driver of Louisville, chapter legislation co-chairman.

Kentucky became the twenty-ninth state to enact legislation regulating the practice of physical therapy. Governor A. B. "Happy" Chandler signed the bill on March 19, 1958. The law provides for a State Board of Physical Therapy composed of three physical therapists. The practice of physical therapy in Kentucky is now limited to physical therapists who meet the qualifications and requirements as set forth in the law and are duly licensed by the Board.

Physical Therapists Appointed to Medical School Faculty

Seven physical therapists at the New York University-Bellevue Medical Center have recently been appointed to the faculty of the Medical Center's College of Medicine.

They are Jack Hofkosh, Edith Buchwald Lawton and Dorothy Buck appointed Instructors; Marguerite Fortmann, Theresa Anastasia, Esther F. Marton and Irene Waters appointed Assistants. Mrs. Lawton and Miss Buck formerly had academic faculty appointments within the New York University School of Education.

Appointment of the group to faculty status within the College of Medicine was made because of the increasing proportion of the time spent by those appointed in teaching activities according to Dr. Howard A. Rusk, Professor and Chairman, Department of Physical Medicine and Rehabilitation. All of the appointments are within the Department of Physical Medicine and Rehabilitation.

Ten Years of Service and Rehabilitation

Muriel Kelly, Unit Chief and Senior Technical Clerk of the Membership Division, Chapter and Membership Department, began her employment in the National Office in May 1948. Beginning as a typist in assistance to Mary Haskell, Miss Kelly gradually assumed greater responsibilities in the Membership Division. At present her work includes responsibility for the clerical aspects of membership records: processing applications for membership and restoral to membership, annual dues, address changes, notification to chapters of transfers and new members, forwarding dues allotment to chapters, and other lesser duties related to this necessary phase of work.

Miss Kelly also is responsible for the mechanics of the student membership program and the maintenance of records for the Association's program for foreign-trained physical therapists. She fills orders for Association insignia and arranges for the scheduling of showings of the film, Proprioceptive Neuromuscular Facilitation. One full time clerk-typist and one part time assistant give Miss Kelly help in accomplishing the myriad of details which are required for accuracy and promptness of service.

To the National Office Staff Muriel Kelly symbolizes the fulfillment of physical therapists' goals for their patients—the recovery of optimum function and the return to a useful life. In 1935, Miss Kelly suffered an attack of poliomyelitis which necessitated hospitalization until 1941. In 1945 she was first able to walk independently using crutches and wearing one long brace. She completed her high school education through a home instruction program and her first gainful employment was accomplished by typing theses manuscripts at home. Since her employment in the National Office Miss Kelly has demonstrated time after time that although she must use aids in walking and must travel to work by taxi, her record of performance and reliability at work and her devoted loyalty to the Association has always been above reproach. Each member of the Association owes a small debt of gratitude to Muriel Kelly for the contribution she has made.

MURIEL KELLY

1921-1939 *Physical Therapy Review* Index

An Index of all original articles appearing in the *Review* during the years 1921-1939, Volumes 1-19, is available at $1.00 per copy. Containing 82 pages (duplicating process), the index has a 3 brad binding and paper cover.

Those who are doing research, a review of the history of physical therapy procedures, or a review of the early writing by physical therapists

in the United States will find the Index most helpful.

Several copies of the Index, Volumes 20-34, covering the years 1940-1954 are still available at $1.00 per copy. Order now from the American Physical Therapy Association, 1790 Broadway, New York 19, N. Y.

Chapter News

Northern California

A joint meeting of occupational and physical therapists was held during the Western Hospital Association Convention in April. An exhibit and a one day program were prepared.

Southern California

The chapter has succeeded in stimulating members to attend meetings this year. Charles M. Magistro, President, writes his impressions of "how to do it."

There are several things I consider important towards achieving these goals. One of the most important is leadership on the part of the Executive Committee. The committee must work with the president in a harmonious manner since any dissatisfaction is certain to be felt by the membership. The leader or president must never lose sight of the fact that he is only a member elected to guide or direct the total group. A leader by definition is nothing, without people to direct. The feeling of being close to the members is also most important. Make the membership feel that this is their organization and enhance their active, not passive, participation in it. If this feeling of empathy can be created, a great step is taken towards chapter unity.

How do you get people to attend chapter meetings? Any and every way possible. I believe in this very firmly. (1) Announcement cards; (2) newsletter announcements; (3) letters written to the chiefs of the various departments reminding them of their obligation as members of a fine profession to attend meetings and also to bring their staff members with them; (4) telephone calls before meetings; (5) organization of car pools; (6) at the meetings themselves encourage attendance, thank those who came, and have them bring more people with them when they come next time. Nothing succeeds like success. If you are fortunate enough as we were in obtaining some outstanding crowds at our meetings the word spreads quickly. As one therapist put it who had not attended a chapter meeting for years, "What I have been missing!"

If you are successful in getting people out to the meeting the next and most important thing is to make their evening worthwhile. Naturally, this is the job of your program chairman, however, it is not his job alone. He must receive cooperation from the entire membership in getting the quality of speaker necessary to justify the therapists attendance. We have thus far been most successful in obtaining what I consider to be outstanding men in their respective fields to speak to our group. They have all enjoyed doing this free of charge and have never "talked down" to the group. Another important aspect I feel is to avoid long meetings when speakers are on the agenda. Read the minutes, make important announcements, introduce the program chairman, who in turn introduces the speaker. A question and answer session follows the speaker, and the meeting is adjourned. Refreshments are served. Following all of our meetings we have found that the members enjoy talking with one another, and this is important. If you have a long drawn out meeting it is unfair to the speaker and also discourages the fraternization among the members.

There are certainly many more aspects which are rather difficult for me to put in writing concerning this problem of attendance. If I were asked what factor I would consider most important I am sure I would say it is the professional responsibility a physical therapist owes his profession and himself. Attendance at meetings is only one way of fulfilling part of your professional obligation.

A symposium planned with the assistance of Dr. Horace Magoun, Chairman of the Anatomy Department at UCLA, was conducted as an all-day affair on Saturday, April 26. The program content included discussions on advances in research on the nervous system that might be relevant to treatment technics, functional centers of the brain, organization of sensorimotor data, the effect of drugs on the nervous system, and pertinent adaption mechanisms of behavior. A registration fee of $10.00 was charged.

Connecticut

The February issue of *Nutmeg News* includes a report of the AHA-APTA Institute for Physical Therapists held in Boston last November; a brief editorial on the worthiness of the Physical Therapy Fund, Inc.; and notices of Eastern and Western District programs.

Louisiana

What's Our Range?, the chapter newsletter, contains news from the Northern and Southern Districts and a School News section. The program of the February meeting of the Southern

District was given by the students from Charity Hospital School of Physical Therapy when they reported on research conducted during their physiology course.

Maryland

Dr. Norman R. Ramsey of the University of Maryland Law School discussed medicolegal aspects of physical therapy in January at a joint meeting of the Maryland Chapter with the Maryland Chapter of the Occupational Therapy Association.

Michigan

The chapter was responsible for planning the joint meeting of occupational and physical therapists held during the Tri-State Hospital Assembly in Chicago, April 28. The theme of the program was "Effective Methods of Communication."

Michigan — Eastern District

The Physical Therapy Fund, Inc. will be the recipient of funds raised for the purpose by Eastern District. Each time local contributions total $50.00, a check will be mailed to the Fund.

The February 1958 newsletter carries a description of specific duties of Eastern District's Chairman, Vice Chairman, and Corresponding and Recording Secretaries. Duties of the Treasurer, Directors, and Chairman of the Nominating Committee will be published in a later issue.

New York — Hudson Valley District

The newsletter recounts the history of the District which will celebrate its second birthday on May 23, 1958.

Greater New York District

The following account of Greater New York District's February meeting is reprinted from the District's February 1958 newsletter.

Scientific Writing

One cold, rainy, dismal evening a small stalwart group of practitioners of the art and science of physical therapy had the good fortune to be audience to an informative and entertaining lecture about the proper methods of writing for professional journals.

Communication is an obligation of all professional persons to their fellows. Writing is one of the most convenient methods of communication to large groups.

Miss Alvina R. Lewis, Assistant to the Editor of the *New York State Journal of Medicine*, described the American people as a nation of "form-filler-outers." She explained that rarely if ever do we have to write complete sentences.

A general routine of operation for medical or scientific writing was described. The most important points are as follows:

1. Carry on preliminary research to determine what and how much was written on the subject previously. Always be sure to note author, title, volume number, page, and date.
2. Form a general outline including; introduction or purpose, material, method, results, discussion, and conclusion.
3. Place the letters, C.C.U. on the top of each page. These letters stand for: clarity, coherence, and unity.
4. Make the introduction interesting and try to engage the reader's attention. Monotony can be avoided by never beginning the first sentence with a, an, or the. It is better to use such words as, when, while, then, until, etc.
5. When you have finished writing—then rewrite. Read your paper for: reorganization, grammatical changes, accuracy, and content.
6. Make the paper as short as possible and still cover the subject adequately. Be very careful of fundamental grammar. (Miss Lewis presented an example written by a physician, no?)
7. Select the title for the article last and be careful to make it brief and comprehensive.

A list of suggested aids for scientific writing was given to each member present. Mrs. Rose Schweitzer and Mrs. Elizabeth Smith, both authorities on scientific writing, assisted Miss Lewis in the discussion following the lecture.

The District held its annual Educational Institute, February 24-26, 1958. During three evening sessions held from 7:30 P.M. to 10:00 P.M. the following subjects were discussed: Ethics and Professional Relations in Physical Therapy, The Physical Therapist as Educator, and The Role of the Physical Therapist in Medicine.

North Carolina

The January 1958 issue of the Chapter newsletter contains items submitted from members representing 19 different departments. The Chapter designated the week of February 16-22 as Physical Therapy Week. A publicity program was planned to precede and climax the week and all heads of physical therapy departments were urged to hold open house for visits by prospective students.

Oklahoma

The Chapter honored its Advisory Council at a dinner in February, and husbands and wives of all members were invited to attend. The newsletter urges members to attend the Annual Conference. The Chapter Secretary will serve as a clearing house for those who would like passengers or rides to Seattle.

Texas — Central District

The Physical Therapy Fund, Inc., received a check for $12.50 from the Central District in February. The money was collected at the January meting in the following manner. Two members contributed prizes prior to the meeting. Each member present at the meeting purchased chances at 25 cents each. (Larger donations were acceptable.) Numbers were then drawn. The holder of the first number called received prize number one; the holder of the second number received prize number two. In the opinion of the District Treasurer, S. Jane Watson, "Everyone seemed to enjoy this type of 'collecting'; therefore, it will be repeated at following meetings this spring."

The District has purchased a supply of American Physical Therapy Association emblems which will be for sale to active members attending meetings.

Texas — Southeastern District

Miss Mary Haskell
Physical Therapy Fund, Inc.
1790 Broadway
New York 19, N. Y.

February 21, 1958

DEAR MISS HASKELL:

In connection with your request for contributions to the Physical Therapy Fund, Inc., we would like to make the following report. Members of the physical therapy staff of the Southwestern Poliomyelitis Respiratory and Rehabilitation Center contributed a total of $47.00. This money was made into a raffle prize for which tickets were sold during the Christmas holidays. We, subsequently, raised the amount of the original donations to $248.00.

Enclosed herewith please find a cashier's check for that amount.

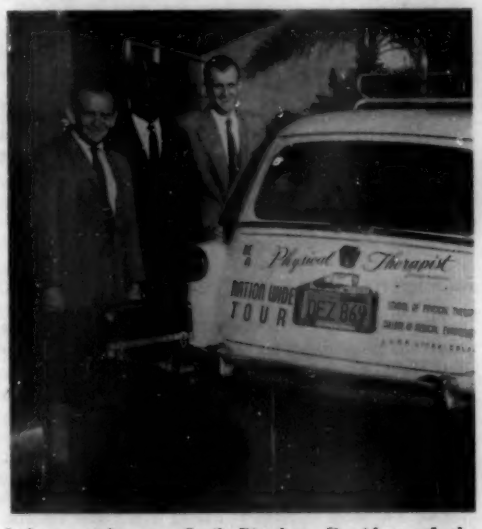
Very truly yours,
(Miss) GERALDINE MIDGLEY

GM/fag
encl.

Send Us Your Name . . .

If you plan to move, send us your name and your new address *five* weeks before you make the change.

College of Medical Evangelists Recruitment Tour



Left to right are Cecil Birtcher, President of the Birtcher Corporation, Charles Thomas, and Dr. Russell E. Youngberg. Not shown in the picture, but another physical therapist who made the trip, was William Price.

Russell Youngberg, M.D., and Charles Thomas, physical therapist, will man the vehicle using equipment given by the Birtcher Medical Foundation, Los Angeles, which has given a grant to the college for the purpose of the trip.

Charles Thomas, a member of the American Physical Therapy Association, was born in India and came to the United States in 1946. A graduate of Pacific Union College, he completed the course in physical therapy at the College of Medical Evangelists in 1952. For the past four years he has served as instructor in the School of Physical Therapy, College of Medical Evangelists.

Dr. Youngberg, also born in India, is a graduate of the College of Medical Evangelists and continued graduate training in physical medicine and rehabilitation under a grant from the National Foundation for Infantile Paralysis.

Demonstrations will be made to interest college, high school, and other youth groups in physical therapy as a profession.

In announcing the project, Cecil Birtcher, President of the Birtcher Corporation, Los Angeles said, "It is my feeling that the national shortage of doctors and physical therapists will be alleviated as young people are made aware of the satisfaction in Physical Therapy careers."

Advisory Committee on Chapter Activities

Report of Fourth Annual Meeting

Your Advisory Committee on Chapter Activities (Advisory to the Chapter and Membership Department) held its fourth meeting in the National Office Jan. 23-25, 1958. The members of the Committee were: Sarah Bassett—Massachusetts, Helen Blood—Utah, Dorothy Page—New York, Wayne Perdue—Nebraska, Katharine Chilcote—Colorado. We were happy to welcome Miss Page as the new member this year. All members attended all sessions at which we also had the able assistance of Dorothy Voss and Mary Haskell.

Again, this year two meetings were held jointly with the Advisory Committee to the Department of Professional Services. Discussion at these meetings was stimulating and served to teach each committee the work and the thinking of the other. In a few instances the directions of the thinking were parallel, and joint discussion served to bring the parallel routes together.

The Advisory Committee on Chapter Activities was pleased to have many more responses to our request for problems from the chapters than previously. Discussion of these problems always takes priority in our agenda. The decisions and suggestions are then mailed to each chapter by Dorothy Voss. The problems sent in covered the following fields: membership, chapter meetings, chapter-district organization, special interest groups, scholarship funds, legislation, chapter exhibits, and recruitment. Nineteen such items were received this year.

Membership

A number of states inquired about the problem of interesting members in chapter activities and of attracting qualified persons who remain outside our Association. It was recommended that an organized program be planned for the year and that it be announced well in advance. The scientific program topic and the agenda of the business meeting should be included so that all members can be made aware of important business to be discussed and voted upon. A friendly attitude expressed by greetings to those who attend irregularly or are there for the first time will encourage regular attendance.

It was further recommended that chapters try to plan for member participation in programs as well as wide representation on Committees. We need to became aware of the potentials about us that would be the basis for good programs and to recognize what talent for good committee work is lying dormant.

In order to assist chapters interested in developing more complete records on chapter members, it was recommended that a double post card asking for the necessary information be used in such a way that it will serve as a preliminary welcome to the chapter as well. This could be mailed to a therapist new in the area soon after arrival.

It is important that the National Office be notified promptly of any change of address. It is especially important when the move involves a change in chapter membership. National Office in turn sends all reported changes to the chapter secretaries weekly. Detailed information (such as place of employment and previous chapter activities) pertinent at the chapter level is best handled at that level. Chapter and district secretaries who hear of members new to their chapter or district and who have not received notice from the National Office should notify the National Office of the new arrival's name and address, or urge the member to inform the National Office of his change.

There were questions concerning members changing their type of membership. Our Bylaws require that Active membership be held before a physical therapist can become eligibile for Inactive status. Therefore, a student member must transfer to Active membership before applying for Inactive status. Any qualified person who has never been a member must become an Active member first.

Chapter-District Relationships

There are many facets to the problems in this category. After some discussion, the committee recommended that Dorothy Voss be asked to handle these problems by letter or by visit. These problems and others will be discussed at the Chapter Workshop in Seattle. All states with the chapter-district organization or those planning to change to this type of organization should plan to be represented. Let's have a good attendance!

Scholarship Funds

Helen Hickey reviewed the available sources of funds, the present methods of distribution,

and the need for other sources. The greatest need and the best time for granting of scholarships are in the Junior and Senior years. The desire for scholarships or grants is considerably stronger than for loans. Those chapters planning a scholarship fund are to be congratulated.

Special Interest Groups

It was recommended that any special interest group remain within the confines of the chapter and that those on the National level remain aware of the lines of authority which would provide the clues for their function at the chapter level. Chapter members belonging to special interest groups may serve as committee members or officers and in this way be aware of chapter problems and activities.

Chapter Workshops

A workshop meeting is planned for Seattle as requested by a number of chapters. Discussion will be centered on items of major concern to chapters and districts. A special memo will be sent to chapters and districts in advance of the meeting. Exchange of ideas will be the order of the day.

Chapter Exhibits

As you will recall the committee went on record last year as believing that chapter funds for exhibits could perhaps be better spent for exhibits on the local level as a means of recruitment or for the purpose of acquainting other professional groups with our profession. However, several chapters showed interest in exhibiting in Seattle and were invited to do so.

Legislation

Chapters are urged to have representatives attend the panel discussion being planned for the meeting of State Examining Committees in Seattle. Details of this meeting will be sent to chapters before Conference time.

Recruitment

The committee considered the recruitment materials sent to chapters to be good. The posters seemed to present the greatest problem of distribution by chapters. It was suggested they be posted in physical therapy departments since informed patients will no doubt interest others in physical therapy.

The Physical Therapy Review

Members are urged to submit original articles for publication. Those who feel a lack of experience in writing would no doubt find that writing case reports for publication is a good way to begin. The more the better. Let's go.

Chapter Manual

The Manual published in 1955 is in need of revision. The job is big. The committee expressed willingness to cooperate with the Chapter Consultant in any way possible to revise and expand the present manual. It was suggested that a sample card be included in the new manual as a guide for chapters in compiling necessary information for the chapter secretary's files. It was also suggested that a sample card be included for use as a request for a membership application blank to be mailed to National Office. The committee believed it would help in recruiting new members to have such cards readily available when contacting potential members. Chapters are urged to devise some means of identifying their meeting—at the door or on the podium. The insignia of the Association may be used in a dignified manner for this purpose.

All members of the committee thank you for your cooperation and welcome your future suggestions and questions to lead us all to the best possible functioning of all chapters.

KATHARINE V. CHILCOTE, *Chairman*

Physical Therapy Legislation in Virginia

Virginia became the twenty-eighth state to enact legislation regulating the practice of physical therapy. Passage of the bill was obtained on Feb. 20, 1958. The law provides for an Advisory Committee on Physical Therapy composed of five physical therapists to assist the State Board of Medical Examiners in the administration of the law. The practice of physical therapy in Virginia is now limited to physical therapists who meet the qualifications and requirements as set forth in the law and are duly licensed by the Board.

VA Bibliography on Paraplegia 1956 Supplement Available

The July 1957 issue of the *Physical Therapy Review*, p. 473, announced the availability of a 65-page booklet on Traumatic Paraplegia, a Selected Bibliography. The 1956 supplement

may be obtained by writing to the Chief, Medical and General Reference Library, Room 974, Veterans Administration Central Office, Washington 25, D. C.

Is This Your Problem?

Many conscientious physical therapists have been troubled because of the necessity of giving treatments without sufficient data on the patients referred to them. In addition to the physical therapist's personal dissatisfaction, such action violates the Code of Ethics, Article II, Section 2, which says that no patient should be treated unless the physical therapist has "adequate information regarding diagnosis, instruction for treatment and, if possible, reexamination date."

How can a physical therapist, aware of the seriousness of this problem and of his responsibility to the patient, develop ways and means of getting sufficient information and adequate prescriptions before treating a patient? The answer is not easy and depends on many factors including the type of service, location of the department, rapport between referring physicians and the therapist and, above all, the willingness of the physical therapist to do *something* to avoid the hazard of treating patients with inadequate prescriptions and information.

The first and most important step in obtaining proper information on a patient is to procure a written prescription. Although an unwritten order is accepted in some departments, it is unwise and unsatisfactory. When oral orders are accepted, the physical therapist has the responsibility of obtaining from the referring physician the necessary written prescription.

Some departments have found it helpful to have forms printed and made easily available to the physicians. Where printed forms are used, they should always include space for instructions for treatment, diagnosis, reexamination date, and/or termination of treatment date, and any additional comments the referring doctor may wish to make. The revised handbook, "Physical Therapy—Essentials of a Hospital Department," published by the American Hospital Association, contains a physical therapy prescription form that can be used as a guide.

How does one get the physicians to use the forms? In a general hospital a supply of forms can be available on every floor and the nurses can be instructed that one must be filled out every time a patient is referred to physical therapy. If the physical therapist accompanies the doctors on rounds, a form can be on hand and filled out immediately. In a public health set-up or private practice, the forms can be mailed to the referring physicians.

Every situation is different and every physical therapist must, to the best of his ability, seek a solution to the problem according to the individual circumstances.

JUDICIAL COMMITTEE

New Student Members

Boston University

Barbara G. Alger
Pamela J. Babcock
Jean H. Bousquet
Mary F. Buckley
Lois D. Burgess
Martha J. Cahoon
Linda R. Carter
Ellen T. Collins
June L. Compardy
Jane L. Cronin
Mary P. Dunlap
Ruth Fiacchino
Adolfo R. Fidi
Judith S. Gordon
James M. Griffin
Amitta M. Holland
Ronald Holzman
Carol A. Little
Hilda E. Lord
Sandra F. Marder
Vivian M. McDonald
Samuel Myerson
Carl E. Nelson
Weldon R. Patterson
Mary E. Pushee
Doris A. Raab
Dorothy J. Rasmusen
Phyllis J. Roy
Mary A. Scully
Sandra R. Seidenberg
Eve M. Skirball
Marjorie A. Stewart
Juliana M. Sullivan
Sandra L. Taeger
Elsie E. Thomas
Herbert C. Verry
Mary A. Whelan
Barbara R. Zwicker

Columbia University

Diane M. Blumenfeld

Duke University

Sarah A. Bailey
Mary S. Barnes
Fred L. Blue, Jr.
William R. Burgamy, Jr.
Leora A. Buzard
Rosemary Chambers
Alda S. Gay
Carol A. Jones
Richard A. Kurras
Jacquelyn E. Niehuss
Elizabeth J. Nuttycombe
Marsha L. Paulk
James D. Seward
Bruce D. South

New York University

Peter D. Cline
John W. LaValley
Barbara P. Kern
Diane E. Watkins

Stanford University

Charles J. Peck
Douglas S. Raymond
Janet C. Tuttle

University of Buffalo

Gretchen Friederich

University of Minnesota

Carol A. Tupac

Washington University

Patricia S. Teague

Student Column

To a Physical Therapist

"Within your hands"

"Within your hands"
A child may lose his fear
And take a measured step or more
Without a cry or pause,
A movement may perform which recognized
by him as new
May open wide a door—
Permit his doing things unknown to him
Performed by others of his age.

"Within your hands"
A mother's heart may heal—
Tho' feet and hands had lost their strength
Not so her love in caring for the ones she
loves,
Today she walks and works because your
hands
Have given aid,
And once again the baby's cry at night
She hears, and goes to answer.

"Within your hands"
Despair may cease,
A hope may grow,
A crippled limb or joint return to useful ways,
A worried brow may soothe;
Your heart, your mind,
Your joy in giving of yourself
For those you serve,
An inner soul reflects
Within your hands.

—Anonymous: RPT

News from the Schools

Duke University

Twenty-one students completed physical therapy training at Duke this year and received certificates in ceremonies in December. Col. Harriet S. Lee, Chief, Army Medical Specialist Corps, was the guest speaker at the graduation program. The theme of her talk was the continued effort and growth demanded of all physical therapists after graduation from their basic training, if they are to attain professional maturity.

Dr. Lenox D. Baker, medical director of the Duke program and well known orthopedic surgeon, received the 1957 Physician's Award of the President's Committee for Employment of the Handicapped. This award is presented annually to the person judged to have made the greatest contribution to the physically handicapped.

Alda S. Gay

University of Connecticut

Honors have been bestowed upon three physical therapy students at the University of Connecticut. Linda Schay was chosen as a University Scholar by a faculty committee. Such Scholars are selected from the highest ranking members of the total Junior and Senior classes of the University on the basis of scholarship and academic record. Not more than six students are selected each year. Audrey McMullen and Elise Rutledge have been selected for the 1957-1958 "Who's Who in American Colleges and Universities." These selections are made on the basis of excellence and sincerity in scholarship and leadership.

At a recent meeting of the Student Branch of the Connecticut Chapter of the American Physical Therapy Association the following officers were elected: Betty White, President; Miller Dayton, Vice President; Nancy Waller, Secretary; Sheila Korngiebel, Treasurer.

Sandra Sharpe

Answers to Professional Test* (Page 339)

Part I	Part II
10	1. True
12	2. False
3	3. False
5	4. True
9	5. True
4	6. True
6	7. False
7	8. True
8	9. True
	10. True
13	11. True
1	12. True
2	13. False
11	14. True

* Creighton, Helen: Law for Physical Therapists, Phys. Ther. Rev., 38: 22-25 (Jan.); 38: 93-96 (Feb.); 38: 165-167 (Mar.); 38: 251-254 (Apr.); 1958.

Physical Therapy Programs

APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Schools offering the four year program leading to a baccalaureate degree accept high school graduates and transfer students. Schools offering the 12 to 16 months' program leading to a certificate accept students who have completed all or most of their undergraduate work providing they meet certain course requirements. Recipients of a degree and/or certificate have equal professional status. For specific information regarding each school's entrance requirements, curriculum, tuition and other fees, write to the physical therapy director indicated below. All students should investigate course requirements *early*.

	Degree	*Certificate*
CALIFORNIA		
Mary J. Dodge School of Physical Therapy Childrens Hospital Society 4614 Sunset Boulevard Los Angeles 27	‡	†
Ronald A. Hershey School of Physical Therapy College of Medical Evangelists Loma Linda	†	†
Lucille Daniels Division of Physical Therapy Stanford University Stanford (Palo Alto)	†	†
Margery L. Wagner Curriculum in Physical Therapy University of California The Medical Center San Francisco 22	†	†
Charlotte W. Anderson Department of Physical Therapy University of Southern California Los Angeles 7	†	†
COLORADO		
Dorothy Hoag Curriculum in Physical Therapy University of Colorado Medical School Denver 20	†	†
CONNECTICUT		
James M. Bauer Acting Director School of Physical Therapy U 101 University of Connecticut Storrs	†	
ILLINOIS		
Elizabeth C. Wood Course in Physical Therapy Northwestern University Medical School 303 East Chicago Avenue Chicago 11	†	†
IOWA		
Olive C. Farr Physical Therapy State University of Iowa Hospitals Iowa City		†
KANSAS		
Ruth G. Monteith Section of Physical Therapy Education University of Kansas Medical Center Kansas City 12	†	†
LOUISIANA		
Isadore Brown, Acting School of Physical Therapy Charity Hospital of Louisiana New Orleans 12		†
MASSACHUSETTS		
Adelaide L. McGarrett Physical Therapy Department Boston University Sargent College 6 Everett Street Cambridge 38	†	†
Constance K. Greene Department of Physical Therapy *Bouvé-Boston School, Tufts University Medford 55	†	
Shirley M. Cogland *Program in Physical Therapy Simmons College-Children's Hospital 300 Longwood Avenue Boston 15	†	†
MICHIGAN		
Virginia Wilson Curriculum in Physical Therapy University of Michigan University Hospital Ann Arbor	†	†
MINNESOTA		
Darrell D. Hunt School of Physical Therapy Mayo Clinic Rochester		†
Wilbur L. Moen Course in Physical Therapy University of Minnesota 860 Mayo Memorial Hospital Minneapolis 14	†	

* Accepts women students only.

‡ Baccalaureate degree available from an affiliating college or university.

	Degree	Certificate
MISSOURI		
Sr. M. Imelda, S.S.M. Department of Physical Therapy St. Louis University 1325 South Grand Boulevard St. Louis 4	†	
Beatrice F. Schulz Department of Physical Therapy Washington University School of Medicine 660 So. Kingshighway St. Louis 10	†	
NEW YORK		
Dorothy L. McLaughlin Albany Medical College Division of Physical Therapy Albany 8	‡	†
Mary E. Callahan Courses for Physical Therapists Columbia University College of Physicians & Surgeons 630 West 168th Street New York 32	†	†
Elizabeth C. Addoms Physical Therapy Curriculum School of Education, New York University Washington Square East New York 3	†	†
Mildred F. Heap Program in Physical Therapy University of Buffalo 2183 Main Street Buffalo 14	†	†
NORTH CAROLINA		
Helen Kaiser Division of Physical Therapy Box 3403, Duke Hospital Durham		†
OHIO		
Robert D. Kruse Course in Physical Therapy Frank E. Bunts Educational Institute 2020 East 93rd Street Cleveland 6		†
Gladys G. Woods School of Physical Therapy Ohio State University University Hospital Columbus	†	†
OKLAHOMA		
Thelma Pedersen School of Physical Therapy University of Oklahoma, Medical Center Oklahoma City 4	†	†

* Accepts women students only.

‡ Baccalaureate degree available from an affiliating college or university.

	Degree	Certificate
PENNSYLVANIA		
Dorothy E. Baethke Division of Physical Therapy University of Pennsylvania Morgan Bldg., 205 S. 34th Street Philadelphia 4	†	†
Kathryn Kelley Curriculum in Physical Therapy D. T. Watson School of Physiatrics Leetsdale	‡	†
PUERTO RICO		
(All classes given in Spanish) Lutgarda V. Piñeiro School of Physical & Occupational Therapy Candelaria & Mandry Streets Stop 22, Santurce	†	†
TEXAS		
Doris E. Porter Grady Vaughn School of Physical Therapy Baylor University Hospital Dallas 1	†	†
Cecelia J. Lee School of Physical Therapy Hermann Hospital Houston 25	‡	†
Ruby Decker School of Physical Therapy The University of Texas Medical Branch Galveston	†	†
VIRGINIA		
Susanne Hirt School of Physical Therapy Medical College of Virginia Richmond 19	†	
WISCONSIN		
Beth J. Phillips Curriculum in Physical Therapy Marquette University School of Medicine 561 North 15th Street Milwaukee 3	†	
Margaret Kohli Course in Physical Therapy University of Wisconsin Madison 6	†	†
U. S. ARMY MEDICAL SERVICE		
*Physical Therapy Course Army Medical Service School Brooke Army Medical Center Fort Sam Houston, Texas Write to: The Surgeon General Department of the Army Washington 25, D. C. Att.: Personnel Division		†

Please direct all inquiries regarding tuition, entrance requirements and other specific information to the school and *not* to the American Physical Therapy Association.

Abstracts

Nerve Lesions in Industry. Atrophy of Disuse as a Confusing Element in Diagnosis; The Value of Electromyography

A. A. Marinacci and C. W. Rand (Los Angeles), CALIFORNIA M., 88: 33-38, January 1958

Muscular atrophy from disuse of normally innervated muscle may accompany muscular atrophy from a peripheral nerve lesion in the same extremity. Such clinically observed atrophy may lead to incorrect diagnosis that the lesion is in the spinal cord, nerve roots, or plexuses.

Disuse atrophy in normally innervated muscles may occur proximal, distal, or adjacent to the muscles affected by the actual nerve lesion. A median nerve lesion below the wrist results in denervation atrophy of the thenar eminence and of the first and second lumbricales. Causalgia in the affected hand often causes restricted shoulder and arm motions. Hence, disuse atrophy appears proximal to the actual nerve lesion. An incorrect diagnosis of intraspinal traumatic cervical lesion or herniation of an intervertebral disk may lead to needless surgery.

Isolated lesions of the long thoracic, dorsal scapular, or axillary nerves result in neurogenic atrophy of the respective muscles in the shoulder girdle or arm. However, disuse atrophy often occurs in the hand and forearm and may lead to the misinterpretation of a brachial plexus lesion.

Thenar atrophy results from a median nerve lesion in the forearm or hand. Disuse atrophy may develop in the adjacent hand muscles innervated by the uninvolved ulnar nerve. The clinical picture appears like that of a brachial plexus or of multiple peripheral nerve lesions.

Electromyography may aid in correct differential diagnosis. Muscles with disuse atrophy produce electromyographic records similar to normal muscles. Denervated muscles produce electromyograms with specific characteristics manifesting a nerve lesion either in the spinal cord, nerve roots, plexuses, or peripheral nerve. Nine illustrations explain the differing electromyographic characteristics of normal resting muscle, of normal voluntary contraction, and of denervated muscle (fibrillation, regeneration, dystrophic and myotonic activity).

From the anatomic distribution of denervation activity obtained electromyographically, the precise location of a nerve lesion can be determined. An anterior horn cell lesion shows plurisegmental denervation; a root lesion shows denervation confined in the affected myotome; a plexus lesion shows denervation only in muscles innervated by its components; a peripheral nerve lesion shows denervation restricted to muscles supplied by the affected nerve regardless of proximal, adjacent, distal atrophy of disuse which may simulate denervation muscular atrophy.

Six case histories are briefly delineated and diagrammed. They illustrate how clinically observed disuse atrophy led to misdiagnosis and how correct localization of the lesion through electromyography led to correct diagnosis and treatment.

Cervical Disk Lesions

G. L. Odom, W. Finney and B. Woodhall (Duke Hospital and Duke University School of Medicine, Durham, North Carolina), J. AM. M. Ass., 166: 23-28, Jan. 4, 1958

Cervical disk lesions have come to be recognized as one of the common causes of upper extremity pain and cervical myelopathy. In a survey made of 246 patients with surgically verified cervical disk lesions, these lesions were divided into four groups: (1) unilateral soft ruptured disks, (2) foraminal spurs, (3) medial soft disk protrusion, and (4) cervical spondylosis. Trauma, neurological findings, roentgenographic changes, myelographic findings, recurrences, and results are considered. Among 175 cases of unilateral ruptured soft disk, the lesion in 122 cases was found at the sixth cervical interspace. Among 46 cases of foraminal spur with nerve root compression the lesion in 22 cases was found at the same level. These patients were divided into 2 groups: the first group who gave histories of symptoms immediately following trauma; the second group who had past injuries with symptoms not directly following trauma. Pain in the neck, shoulder, and arm were common symptoms. In compression of the sixth nerve root, isolated weakness of the triceps, biceps, and deltoid muscles was found. There were no deaths in the 221 patients operated on for unilateral ruptured disks and foraminal spurs. The incidence of recurrence of spurs or disk protrusions was low. Over half of the patients had better than good results.

The symptoms of medial ruptured disk varied greatly. In no cases was a history of trauma obtained. The majority of cases showed increasing weakness of the lower extremities. Pain was not a common complaint. Over half of these patients had satisfactory results or better postoperatively.

The most frequent findings in cervical spondylosis were increasing motor weakness or spasticity in the lower extremities. Over half of these patients had satisfactory results or better.

It is evident that there must be a combination of factors responsible for the changes in cervical disk lesions. It is felt that trauma is secondary while the metobolic changes are primary. There is still apprehension about cervical disk surgery, which is unwarranted. It is the author's opinion that the prevention of degenerative changes in the spinal cord is an indication for early surgery.

A Survey on Early Ambulation After Surgery

Daniel J. Leithauser (Detroit, Michigan), SURG. GYN. OBST., 106: 100-104, January 1958

A questionnaire addressed to 83 hospitals to which there were 764 individual replies demonstrates that early ambulation after operation has found practically universal acceptance at least in theory. Nevertheless, only a small minority of surgeons practice early ambulation in a way that will be of most benefit, considered in the light of the pathophysiology of the trauma syndrome. The great majority will fail to employ ambulation early enough after recovery from the anesthetic and with sufficient frequency during the immediate postoperative period to counteract effectively the impairment of circulatory, pulmonary, and digestive function resulting from the operation.

Answers indicate that some surgeons prescribe ambulation immediately on recovery from the anesthetic, while others delay ambulation as late as the fifth or sixth day. Besides the difference among surgeons on the same hospital staff, the questionnaire also indicates that individual surgeons are inconsistent in their use of early ambulation.

Besides variations in numbers of days postoperative, the type of patient activity permitted or insisted upon varies. Some surgeons believe that ambulation is contraindicated after any extensive procedure, especially when the patient appears very ill. Others admit that they do not require patients to walk if they do not feel like doing so. Only 29 insist that early ambulation be carried out vigorously (that is, in cases in which it is routinely used), while 23 stated that they are moderately insistent, and 15 admitted that walking after operation is not insisted upon, but is left up to the discretion of the patient.

Since there is practically unanimous agreement both by those who use ambulation immediately, and those who use it very late, that postoperative walking causes no ill effects, and that it hastens recovery, the reluctance to have patients ambulate immediately, or on the day of operation, is indeed surprising. The discrepancies, inconsistencies, and conservatism provide convincing evidence that the rationale and therapeutic effect of early ambulation are not yet appreciated by the majority of surgeons in the United States.

There is a lingering reluctance to break with the teachings and practices of the past. The problems that remain regarding early ambulation involve the general acceptance of a more precise and methodical technic of administering this procedure so as to derive the maximum benefit from it.

Surgical trauma disrupts normal function. Walking alleviates this biological imbalance and has a tendency to reverse the pathologic physiology of the trauma syndrome. Voluntary contraction of large leg muscles shunts the sluggish venous blood into the arterial system. If this rationale is correct, then ambulation should be instituted immediately on recovery from anesthesia, especially in patients with severe manifestations of the trauma syndrome. Some of the most dramatic results in the author's experience have been in patients that the majority of surgeons, judging from information furnished in the questionnaire, would regard as "too ill" to be subjected to immediate ambulation.

A patient in true shock, with an ashen cyanosis, cold clammy skin, and peripheral vascular failure, is too weak even to attempt ambulation, but if the condition is still reversible, then vigorous leg exercises, passive or active, may be of great value in stimulating circulation. In these serious cases, of course, the surgeon himself, or a specially trained assistant, should supervise the first ambulatory period. An experienced person with requisite skill and confidence is needed to handle the mobilization of such patients.

In the author's experience, which includes routine use of the procedure since 1938, the best results are obtained when ambulation is administered radically. This means the surgical patient is routinely required to get up to walk immediately on recovery from the anesthetic. If he shows signs of fear or is reluctant to cooperate, two or three ambulatory periods in rapid succession are effective in overcoming the difficulty. Usually a patient should be required to walk once every hour during the first four hours after recovery from the anesthetic. By the following day, most patients require little or no supervision, except the constant reminder to walk frequently. Patients will not be too active, no matter how much prodding they receive. With this regimen, narcotics should be employed very sparingly, after operation.

It is the surgeon's responsibility, and not the patient's desire, which regulates the time, frequency, and consistent requirement of postoperative walking, in accordance with the patient's needs.

Rehabilitation Services in the Municipal Hospitals of New York City

Bruce B. Grynbaum, and Irving M. Friedman (Department of Physical Medicine and Rehabilitation, New York University College of Medicine, New York), N. YORK STATE J. M., 58: 60-62, Jan. 1, 1958

The Physical Medicine and Rehabilitation Service in the New York City municipal hospital system is thought to be the largest non-federal service of its kind in the world. This service had its beginning following World War II when a comprehensive rehabilitation department consisting of 69 beds was inaugurated at Bellevue Hospital under the leadership of Dr. Howard A. Rusk. Today there are seven rehabilitation centers totaling 831 beds in the municipality. Each rehabilitation department is an independent hospital service located within the hospital premises. On the wards assigned to rehabilitation the department is responsible for the total medical care. The service coordinates the opinions of various consultants and controls admissions and discharges.

The director of each department is a member of the medical board of the individual hospital as well as a member of the faculty of a medical school. In addition to the visiting house and medical staff, each department has physical therapists, occupational therapists, rehabilitation nurses, vocational counselors, speech therapists, psychologists, social workers, recreational leaders, and a psychiatrist.

In view of the variety of treatment problems, certain hospitals have been concentrating their activity on special categories of patients. Bellevue has been designated as a spinal injury center. Goldwater Memorial Hospital is the Polio Respiratory Center. Part of Goldwater Memorial and Bird S. Coler Services are designated as geriatric rehabilitation centers.

All of the departments are affiliated with medical schools, and are widely used for training undergraduate and postgraduate medical and ancillary personnel.

Dr. Howard Rusk has pointed out that the cost of salaries for rehabilitation personnel is paid back to the hospital system at 130 per cent, demonstrating a substantial financial saving to the community.

There is a need for more trained personnel, particularly physical therapists and occupational therapists, and for an expansion of the program to care for the increasing percentage of chronically ill and aged patients with their many socioeconomic problems.

The Grasping Deficit in Infantile Spastic Hemiparesis

Thomas E. Twitchell (Department of Neurology, Tufts University Medical School, Boston), NEUROLOGY, 8: 13-21, January 1958

The author reports on a study of 25 infantile spastic hemiplegics who present an inability to use the hand of the affected extremities with the power and dexterity of a normal hand. The purpose of the study is to point out some of the factors underlying this movement deficit in the upper extremity, particularly with regard to use of the hand for grasping an object. The group of patients studied retained some use of the hand but it was obviously deficient.

The neurologic examination and resting posture are described. Little

diminution in power of willed movement was demonstrated in the shoulder and elbow muscles. However, strength of both flexion and extension was impaired in the wrist and fingers, extensor movements being more affected than flexor movements.

Besides a slowness, clumsiness, and lack of dexterity in the impaired hand, there appeared several other striking features. There seemed to be *primarily* an ataxia manifested as an overextension of the fingers and occasionally of the wrist as the hand reached out to grasp an object. *Secondly*, a dissolution of the normal fixation of the wrist and elbow was apparent as an object was grasped. There was an obvious weakness of the grasp that had a fluctuating quality. The author attributed this deficit partly to a weakness affecting the prime movers, but mainly to an absence of the normal contraction of the gynergists (wrist extensors) and the fixators (elbow flexors and extensors). These normal responses were replaced by flexion of the wrist and elbow as part of a total flexor synergy of the hemiparetic limb.

To explain the presence of flexor synergy in these patients the author describes the traction response. This is a reflex response found in the monkey with rolandic motor cortex or pyramid lesion and is characterized by flexion of the elbow, wrist, and fingers when the shoulder adductors are passively stretched. The ability for voluntary grasping in infantile spastic hemiparesis results from a learned adaptation of the traction response as a flexor synergy of the upper limb. The synergistic flexion of wrist and elbow, however, contributes to weakness of grasp owing to the mechanical disadvantage of such flexion.

The overextension of the fingers and wrist as the hemiparetic hand attempts to grasp an object and the fluctuating quality of the grip were likened to the instinctive avoiding reactions occurring in the limb opposite a parietal lobe lesion in the monkey. The avoiding reactions in the experimental animal can be elicited either by visual or tactile stimuli and consist of a flexion of the limb away from the stimulus. Of particular interest is the avoiding reaction resulting from contactual stimulation of the palm which causes an extension of the fingers and wrist with eversion or inversion depending upon the side of the palm stimulated. The response of the infantile spastic hemiparetic patients to contactual stimulation of the palm was found to be identical to this avoiding reaction. The overactivity of the avoiding response in the patients studied was manifested by the initial extension of the wrist and fingers as the hand reached to grasp an object. This factor may also induce further weakness in grip because the object grasped provides a contactual stimulus for an antagonistic response.

Manipulation in the Management of Chronic Low Backache Due to "Lumbosacral Strain"

R. A. Bremner (The Middlesex Hospital, London), LANCET, LOND., 1: 20-21, Jan. 4, 1958

This study was made in an effort to determine whether manipulation of the lumbar spine, under anesthesia, produces sufficiently good immediate results to warrant its routine use in cases of "lumbosacral strain." The author defines "lumbosacral strain" as a chronic localized disk degeneration, usually at the L5-S1 level, with associated derangement of the corresponding posterior joints and ligaments, from which pain arises. It was felt that if the immediate results were good there would be an earlier discharge of this type of patient from orthopedic clinics.

There were 250 consecutive cases diagnosed as lumbosacral strain included in the study, of which 84 were males and 166 were females. The average age of the males was 39 and the average age of the females was 36.

All patients had an "orthopedic" manipulation of the lumbar spine through a complete range of movement under anesthesia. Following the manipulation, the patients were given an average period of two weeks of physical therapy which included simple spinal exercises, instruction in correct posture, and technics of lifting and bending. Treatment was on an outpatient basis.

At the completion of the treatment the patients were placed in one of the following four groups depending, primarily, on the subjective assessment of their symptoms:

Group I	"Cured"
Group II	"Improved"
Group III	"No Change"
Group IV	"Worse"

Ten per cent of the cases fell in Group I, 76.8 per cent fell in Group II, and 13.2 per cent fell in Groups III and IV combined. Of the cases in Group II 54.4 per cent were able to be discharged at the first clinic visit after the manipulation along with Group I, which meant that 64.4 per cent of the patients were discharged after the manipulation. A total of 86.8 per cent were benefited by the manipulation. Twenty-three per cent of all the patients were ultimately fitted with a lumbosacral corset.

The author believes that long term relief in cases of lumbosacral sprain depends on the patient's ability to adjust posture and activities to the limitations of the spine. In addition, manipulation under anesthesia gives a sufficiently high percentage of immediate satisfactory results to justify its routine use as a palliative measure.

Recent Advances in Cardiac Surgery—3. Physiotherapy

J. M. Jenkins, PHYSIOTHERAPY, 44: 11-12, January 1958

The main lines to follow in the treatment of cardiac surgery patients are those of any postoperative treatment for thoracotomy. There are no hard and fast rules for progression as these patients must all be treated as individual cases.

The basic treatment used for all cardiac cases consists of the following—(1) maintenance of good lung expansion and expectoration of any sputum that may be present, (2) correction of posture, (3) maintenance of general circulation and movement while in bed, and (4) rehabilitation of as much movement and mobility as possible. In some cases this involves teaching the patient to walk or to use the extremities for the first time, as for example, a child who has always been bedridden.

It should be remembered that not all patients are expected to be improved 100 per cent by the operative procedure and these must be re-educated within their own capacity. Therefore the physical therapist needs to be able to estimate the patient's capabilities and keep him within these limits. The main point is observation of the patient for increased cyanosis and breathlessness and gaging the work accordingly. Daily blood pressure and pulse records are advisable rather than frequent pulse taking before and after exercise.

There are two main categories of patients—those who get up about the fifth day and those who remain in bed for three weeks. The first group includes patients who have

had a valvotomy and children who have had the Blalock operation. The second group includes all the aortic conditions, such as coarctation, aneurysm, and stenosis.

The patients are usually seen preoperatively for breathing exercises—general deep breathing, and upper and lower costal bilateral breathing. Diaphragmatic breathing is taught to facilitate postoperative coughing. Explanations of posture correction and arm motions are also given to the patients.

Postoperatively the patients receive a graded simple exercise program which is increased daily until the patient is standing and walking. Each patient's progression is on an individual basis, dependent upon the type of operation performed.

Electrical Burns of the Upper Extremities

G. Kenneth Lewis (6 North Michigan Ave., Chicago), J. BONE SURG., 40-A: 27-40, January 1958

Statistically, fatalities from electrical shock are very few compared to those resulting from thermal burns. However, it is the intention of the author to discuss the seriousness of burns from electrical shock.

There are certain pathological differences between electrical and thermal burns. The extent of damage of the latter may be determined after the second or third dressing. The intense heat of electrical burns causes cell destruction, strong muscle contracture, inhibited function of vital organs, full thickness skin loss, volatilization, necrosis, and even elimination of bone, necessitating delayed damage evaluation.

Since anything above 65 volts can be considered dangerous it is important to know the type and amount of current. Alternating current is three times more dangerous than direct current while higher frequencies seem less so than the low frequencies. Shock, however, depends more on the conditions of contact, i.e., wet or dry, than on the nature of the current. Because the body is the conductor and has varisble resistance, the amperage of current is difficult to determine although the actual voltage is measureable.

The resistance of the body varies as to prevailing conditions with the skin generally more resistant than the deeper tissues. Bone may have an even higher resistance than skin with the exception of the skull. There is a difference of opinion regarding bone necrosis; due either to loss of periosteum or due to the intense direct current.

The pathway of the current is of utmost importance, tending to follow the path of least resistance. Blood vessels are one of the best conductors. The greatest density of current is concentrated at the points of entrance and exit.

Remarkably strong tetanic contractions produced by the electrical current may cause muscle tearing, bone fractures, and joint dislocation. A body may be flung away from the current source or held until the current is broken. Alternating current, with its tetanizing effect may produce irreversible contractures which outlast the passage of current.

Electric shock to the central nervous system may produce symptoms similar to a severe cerebral concussion with cerebral edema causing intracranial tension. The heart and/or the respiratory centers may also be affected. Fatalities are generally attributed to direct action of electrical current on the heart producing ventricular fibrillation.

One of the major characteristics of an electrical burn is that apparently normal tissue may become necrotic due to the vulnerability of blood vessels which may be brittle, making ligation impossible. Contact burns differ from electric heat and chemical burns because there is little pain, original appearance is maintained and there is a tendency to heal within days or weeks. The arc burns are the most serious. Electrical markings are found at entrance and exit with an irregular, deep groove to underlying tissues. Demarcation of necrotic tissue may lead to severe functional disturbances. Lightning burns are characterized by superficial or deep scarring of skin with paraesthesia and temporary paralysis due to current passing along the peripheral nerve.

Susceptibility to electric shock is an individual matter. Certain people are sensitive; others are not. Some persons with heart disease can withstand the shock as well as those without heart disease. The same person may be more susceptible at one time than another. Burns may be severe with slight systemic damage, or the reverse may equally be true.

Treatment of electric shock must be immediate, with artificial respiration, cardiac stimulation, and even cardiac massage (if applied within five minutes of the accident.) The author favors the conservative approach to the treatment of electrical burns because the damage is progressive. As soon as the final extent of destruction is ascertained, however, exposed bone and tendons are covered by grafts. Later, reconstructive surgery is performed and rehabilitation is frequently necessary.

The Surgical Management of Friedreich's Ataxia

Myer Makin, (Rothschild-Hadassah University Hospital, Jerusalem), ANN. R. COLL. SURG., 22: 1-10, January 1958

Because Friedreich's Ataxia is considered to be a progressive neurological disorder, surgical intervention has not often been contemplated. In this study, however, severe foot deformities accompanied the ataxia. Fixed equinus deformity, varus deformity, symmetrical claw foot, and claw toe deformities were the major defects. Some definable muscle weakness was found in the majority of cases. Quadriceps and hamstrings were rarely affected but hip musculature was weakened early in the disease. The same was true of the intrinsic muscles of the hand characterizing a "monkey fist" or "the intrinsic minus hand."

The author considers the ataxic gait to have a two-fold cause. Initially, the neurological ataxia and secondly, the musculoskeletal instability, the latter aggravating the first. In studying 51 operative cases, surgical procedures were performed on 94 feet.

Triple arthrodesis was the procedure of choice with special bone resections performed for equinus or cavus feet. A muscle not generally affected by the progress of the disease, the posterior tibialis, was transplanted to the dorsum of the foot. This eliminated the main deforming factor and converted it into an active dorsiflexor.

Before operating, the rate of progression of the disease should be well known. In cases of the abortive form, correction of the deformity allows a normal or near normal gait. In the progressive forms, surgery provides a more stable base of support and delays the time when patients are forced to become wheel chair or bed patients. Cases in which there is rapid progression of the ataxia are considered unsuitable for operation.

Three case histories support the theory that correction of foot de-

formity permitted the patients to be mobile for a longer time than otherwise would have been possible. In one instance, opponens transplants in the hands created a grip which allowed temporary hand use to the extent that the patient was productively employed. Three spinal fusions were performed in an attempt to correct scoliosis or to prevent advancing round back deformity.

Fractures of the Elbow in Children

Donald J. Maylahn and John J. Fahey (Department of Orthopaedics, St. Francis Hospital, Evanston, Ill.), J. AM. M. ASS., 166: 220-228, Jan. 18, 1958

Fractures of the elbow in children are a major problem in management because of resulting deformities from inaccurate reduction and complications arising from vascular and nerve damage. Three hundred fractures about the elbow in children were analyzed and the most frequent type found was the supracondylar fracture. Screw traction through the proximal ulna is recommended as the primary treatment for this type of fracture if there is severe displacement; three weeks of traction are generally followed by two weeks of immobilization in a cast. When the cast is removed, the extremity is placed in a sling and only active motion is permitted. Fractures of the lateral condyle require careful diagnosis because even a slight displacement of the capitellar epiphysis can result in deformity. Displaced fractures of the capitellum require open reduction and fixation. In those patients with little or no displacement, plaster immobilization in 90 degree flexion and supination is usually sufficient. Fractures of the medial epicondyle are best treated by closed methods with open reduction reserved for these cases in which the fragment is incarcerated in the joint. In fractures of the proximal end of the radius, rotation views are important in order to determine in which position the forearm should be held in correction of the deformity. Fractures of this type were successfully treated by immobilization without severe displacement; others required either manipulation or open operation. Excision of the head of the radius should be avoided. In peripheral nerve injuries associated with elbow fractures in children, early exploration is not necessary, since spontaneous recovery is the rule. Only after expected recovery is overdue (six weeks) is exploration indicated.

Body Image and Paralytic Poliomyelitis

B. Z. Lebovitz and Martin Lakin, J. NERV. MENT. DIS., 125: 518-523, October-December 1957

It is the purpose of this paper to report an attempt to apply experimental methodology to an investigation of body image. The immediate purpose is to ascertain whether polio patients view their bodies in a manner that is different from that of normal, nonimpaired persons.

Fifteen paralytic polio patients were given various tests to obtain self assessment in physical and symbolic terms. The results of the tests were compared to those of 15 nurses used as controls in the experiment. Areas such as the chest, spinal cord, abdomen, and hands tended to arouse greater concern among the polio patients.

The anxiety characteristic of the polio patients seemed to be a result of conflict brought on by an attempt to retain his conception of body image as it was before the onset of polio.

The Uncommon Connective Tissue Diseases

John H. Talbott (University of Buffalo School of Medicine), POSTGRAD. M., 23: 17-23, January 1958

The increased incidence of systemic lupus erythematosis during the past few years emphasizes the importance of considering this possibility in the differential diagnosis of sporadic clinical problems that appear vague on initial examination.

The terms collagen disease and connective tissue are widely used in the literature and familiarity has dispelled much of the mysticism formerly associated with these terms. The author discusses whether or not rheumatoid arthritis is a forerunner of one of the unusual collagen disorders. Under the less common collagen diseases the author lists systemic lupus erythematosis, scleraderma, acute dermatomyositis, polyarteritis, and thrombotic thrombopenic purpura. The article also lists some of the rarer collagen diseases.

A detailed description of the diagnostic findings in systemic lupus, systemic scleraderma, acute dermatomyositis, and polyarteritis points out the difficulties of differential diagnosis.

Treatment of these disorders leaves much to be desired and there is no cure. The author feels that general measures have prolonged life and inhibited distressing symptoms. Nutrition should be maintained, heart failure should be treated with low salt diet and cardiac preparations. Physical rest during acute phases is obligatory. Mild and severe infections must be sought out and treated with antibiotics. It is important that these patients avoid the indiscriminate use of drugs. Avoidance of exposure to sun or artificial ultraviolet radiation also deserves special attention.

The author favors steroid therapy because it offers one of the most successful temporary benefits. Recently antimalarial drugs have gained considerable notice. It is believed that they provide one more therapeutic approach to the management of these conditions.

Relation of Appetite to Exercise

K. Passmore (Department of Physiology, University of Edinburgh), LANCET, LOND., 1: 29, Jan. 4, 1958

Medical writers often discount the value of exercise in the treatment of obesity, because it is alleged that the extra physical activity will promote appetite, and the energy value of the food consumed will be the same as, or even more than, the energy value of the exercise.

As a result of observations of a moderately obese dog who performed varying amounts of exercise over a period of 49 days, it was found that food intake was reduced during a period of light exercise, and that throughout a period of hard exercise it remained approximately the same as in two sedentary periods. The result supports the suggestion made by other workers who found that in rats a certain minimal level of physical activity is necessary for the appetite to function with precision and to adjust food intake to requirements. The author believes that if this hypothesis could be substantiated in man, it would have great practical importance in the treatment of obesity. He states that the life led by most urban people is sedentary and that the daily physical

activity of many thousands of light workers may be below the threshold needed for the appetite to function normally. For this reason they may overeat and become obese.

The Disability Caused by Spasticity

Dennis Williams, PHYSIOTHERAPY, 43: 349-350, December 1957

In the condition of spasticity we are apt to forget that although the muscle is acting incorrectly, the cause is always in the central nervous system. The brain works as a whole. Whenever you see a spastic patient remember that the part of the brain which is inefficient because of damage is affecting every other part of the brain too.

There are two kinds of disorders of tone, spasticity seen in pyramidal pathway damage, and rigidity seen in extrapyramidal damage. An example of the former is the patient with hemiplegia, and of the latter, parkinsonism. We should realize that the symptoms shown are not due to the damaged area but are brought about by the rest of the brain trying to act without the help of the diseased part. Spasticity and rigidity occur when controls are removed by disease.

Secondary effects of spasticity are limitation of movement, disorders of posture, shortening of tendons, and distortion of joints. It is absurd to try to change the posture, unless we are able to deal with the increased tone. The kind of spasticity present is modified by the age of the person, the kind of person, and the sort of life he habitually leads. Loss of sensation and alterations of intellectual level may also complicate the picture.

The management of spasticity is first either surgical or medical, then the physical therapist enters the picture. Physical therapy should maintain the health of affected joints and muscles, teach relaxation and then produce correct movement.

Posture and the Rhinencephalon. A New Interpretation

D. Stanley Jones, J. NERV. MENT. DIS., 125: 591-597, October-December 1957

The tonus of antigravity extensors is maintained by reverberating circuits of neural impulses which continuously are at work. In order to make way for the righting reflexes, the circuits must be suppressed. The suppressor system is also a pathway with action controlled by the cortical suppressor strips. This response is antagonistic to gravity. This source for suppression is believed to be located in the rhinencephalon.

Consideration of the comparative physiology of amphioxus, dogfish, amphibian, and human support this view of inhibitory properties of the rhinencephalon. This region is believed to store neural energy, which is immediately available in an emergency. Changes in the alpha rhythm are cited as objective evidence in support of this theory.

Physical Medicine and Rehabilitation: Effectiveness and Progress in Restoration of the Chronically Ill and Aging

A. B. C. Knudson (Physical Medicine and Rehabilitation Service, Veterans Administration, Washington, D. C.), ANN. INT. M., 48: 139-145, January 1958

The population of the United States is aging and it is estimated that by 1970 there will be 17 million persons 65 years of age or over. Several surveys in Veterans Administration hospitals indicated that the number of long term patients had increased from 8,000 to 10,000 between 1955 and 1956.

The author feels that physical medicine and rehabilitation is making a great contribution in the restoration of chronically ill and geriatric patients by instilling motivation, hope for the future, return of self respect, and restoration of confidence. This may be accomplished by correcting disability completely, or restoring function in whole or in part. Progression of disease or disability may be retarded, or at least many of the patients can maintain self care and even have full or part time employment. Some patients, supposedly hospitalized for life, are returning to the community, and extended hospitalization is not being required.

Important in overcoming the challenge of chronic illness and aging is adequate evaluation, careful reevaluation, reconditioning within physical tolerance, and establishment of feasible goals. To accomplish these objectives, research and continuous studies of these problems are necessary. Motivation is imperative but overmotivation may be dangerous. Adaptations or modifications may have to be made in a rehabilitative program or in equipment being used. Thus, the patients are encouraged to perform maximally within their tolerance.

Follow-up and outpatient therapy find importance in recognizing early signs of deterioration; thus, prevention can be instigated by further modified programs. It is under the realm of physical medicine and rehabilitation to meet the challenge imposed by medical science which extends life expectancy but does not teach the elderly to live as socially useful individuals.

Rehabilitation in the Home—The Chronically Ill and the Aging Patient (Scientific Exhibit)

Eugene Moskowitz (New York University-Bellevue Medical Center, New York), POSTGRAD. M., 23: 70-77, January 1958

In outline form the program for rehabilitation in the home is defined—by listing the objectives, the goal, the treatment and the variables.

Excellent photographs show a variety of simple methods for handling rehabilitation problems in the home. The types of patients shown include an arthritic, hemiplegic, and amputee.

Tabulation and Review of Autopsy Findings in Fifty-five Paraplegics

Ronald B. Dietrick and Simon Russi (Veterans Administration Hospital, Richmond, Virginia), J. AM. M. ASS., 166: 41-44, Jan. 4, 1958

Autopsy records of 55 paraplegics studied gave an average longevity of 43.6 months after the onset of paraplegia. Those with nontraumatic paraplegia lived an average of 31.6 months, whereas those with traumatic paraplegia who did not die immediately after injury lived an average of 52.8 months.

Renal disease, liver disease, acute abdominal conditions, and generalized infections were most frequently found as the primary pathological diagnosis, though the incidence of renal disease as a fatal complication

is apparently decreasing. Amyloidosis is a severe and important complication in paraplegia and was found in 23.5 per cent of the cases. It is felt that more amyloidosis will be seen in paraplegia as longevity increases unless chronic infectious diseases, and especially the occurrence of decubitus ulcers, is prevented or controlled. In addition, genitourinary disease, liver disease, decubitus ulcers, ascites, atrophy of the testes and splenomegaly were seen so often in the autopsies that they are considered to be major complications of paraplegia.

Paraplegia is a continuing and increasing problem. Nevertheless, the paraplegic today has a better life expectancy than the paraplegic of ten years ago.

Rehabilitation in Arthritic Diseases. A Two Year Follow-Up

J. P. Gofton, (Canadian Arthritis and Rheumatism Society, Vancouver, British Columbia), ANN. RHEUMAT. DIS., LOND., 16: 456-459, December 1957

The author reports on a statistical survey covering two years' work by the British Columbia Division of the Canadian Arthritis and Rheumatism Society, a volunteer health agency, engaged in providing rehabilitation services to patients throughout British Columbia.

The headquarters of this society are located in Vancouver, where an active treatment center is maintained for inpatients. Here specialists in arthritis and rheumatism, physical therapists, occupational therapists, social service workers, and nurses are employed. However, most of the work of the organization is performed in 20 treatment units throughout an area 600 by 800 miles. Each of these small treatment centers is staffed by a physical therapist who has adequate basic equipment at his disposal and a car to enable him to provide additional treatment in the home or nearby towns. In all instances, the physical therapist treats a patient only under the direction of the patient's physician. The small treatment centers are supported by various local organizations who raise funds, provide facilities, and organize voluntary services for patients.

The results of the statistical survey presented indicate that the rehabilitation measures provided in this program are beneficial. It is thought that the society does much valuable work in preventing and alleviating disability and invalidism.

Production of Reversible Changes in the Central Nervous System by Ultrasound

F. J. Fry, H. W. Aldes and W. J. Fry (Bioacoustics Laboratory, University of Illinois), SCIENCE, 127: 83-84, Jan. 10, 1958

For the past several years, intensive research has been in progress by this group on the production of selective lesions in tissues of the central nervous system by high intensity ultrasound. Considerable information has been obtained concerning dosage required to produce such lesions.

Recent electrophysiological studies indicate that reversible suppression of transmission along neural pathways can be accomplished by applying a controlled dosage of ultrasound at various sites along these pathways. By irradiating in the lateral geniculate nucleus it is possible to suppress temporarily the usually evoked potential in the visual cortex in response to a light stimulus. This amount of irradiation does not produce any histologically observable lesion. This technic offers unique opportunities for three-dimensional mapping of central nervous system function.

Experiments are in progress to quantify further the conditions for producing controlled reversibility and to determine the site or sites (axons, synapses, cell bodies) of the sounds.

Our Abstracters for May

We are indebted to the following Association members for their assistance in the preparation of the abstracts appearing in this issue.

Rachel Adams	Elizabeth Davies
Joan Brewer	J. Heidenreich
Dorothy Briggs	Alfred Szumski
Sam Chelemsky	Jean Thibaut

Book Reviews . . . . .

Calderwood's Orthopedic Nursing. *Revised by Carrol B. Larson, M.D., F.A.C.S., Professor of Orthopedic Surgery and Chairman of Department of Orthopedic Surgery, State University of Iowa; and Marjorie Gould, M.S., Supervisor of Orthopedic Nursing, State University of Iowa, formerly Instructor, Advanced Orthopedic Nursing, Boston University. Ed. 4. Cloth; price, $5.75. Pp. 679; illus. The C. V. Mosby Co., St. Louis, 1957.*

The second revision of *Calderwood's Orthopedic Nursing* resulted in many improvements. The material is rearranged in a more logical sequence and has been brought up-to-date. The content is divided into units with headings and subheadings which facilitates finding specific terms. The references are also brought up-to-date with the addition of recent writings; a list of references is found at the end of each unit following the study guide. Discussions of orthopedic conditions precede the description of nursing care, and this pattern has not been changed by the authors. The illustrations are plentiful and give support to the descriptions.

The text of this book contains a comprehensive description of the total care of patients with orthopedic conditions. It begins with the nurse's own body mechanics; the objective is to help him to a more efficient use of his body and hands. This also helps the nurse to appreciate the patient's posture; to prevent deformities and to give him comfort.

The discussion on rehabilitation is given a whole chapter and this is good because helping the patient to independence should be included in total nursing care.

The unit following this relates to the care of patients who are in casts or in traction, describing how to handle these patients gently and safely, and how to change their positions without interfering with the functions of the apparatus. It also describes such signs and symptoms as interference in circulation, skin conditions, wrong pull of a traction, and tells how to look for these. The information regarding the purposes, applications and care of the cast or apparatus is written simply, is well illustrated, and easily understood. The nursing skills described in these chapters are practical and should be helpful to anyone giving care to patients who are surrounded by frames and pulleys or enclosed in casts. The descriptions are not only

practical, they make nursing an art.

The remainder of the book is concerned with a brief discussion of orthopedic conditions and each discussion is followed by the description of treatment and nursing care for the specific condition. It begins with congenital anomalies and includes neuromuscular diseases, diseases of bones and joints, fractures, injuries, and orthopedic surgery.

The book is designed to be used in teaching orthopedic nursing. The text can be adapted for the basic school of nursing curriculum, for the graduate nurse program, or for the nursing service staff education program. It can be of real help to the physical therapist in the hospital who is often called upon to give treatment to patients who are in cast or traction. The authors have had a great deal of experience in teaching orthopedic nursing and I suspect that the book was well tested before it went to the printers.

A Laboratory Guide to Anatomy and Physiology. *By Barry G. King, Ph.D., Medical Division, Research Executive, Civil Aeronautics Administration, Associate Professor of Physiology, Ohio State University of Medicine; and Mary Jane Showers, M.S., Formerly Director of Educational Program, Instructor in Biological Sciences, The Christ Hospital School of Nursing, Cincinnati. Illustrations by Phyllis Anderson. Paper; price $3.00. Pp. 161, W. B. Saunders Company, Philadelphia, 1957.*

This laboratory manual is divided into five units with a group of lessons under each unit. The lessons consist of directions for library work, microscopic study, dissection, or experimental work. Directions are written in detail so that the student can prepare for and carry out the desired plan. The student is then guided to use the acquired data for a better understanding of the structure and function of the body. The units include: I. The body as an integral whole, II. The integration and control of the body by the nervous system, III. The erect and moving body, IV. The reproduction of the human body. This gives a good coverage of the entire body. The coverage is too general, however, to be of value as a laboratory text for the occupational or physical therapy student. The anatomy unit is brief and does not include dissection or the basic function of muscles which is necessary for these students. The physiology of all of the systems of the body is covered, but again it seems that more detail would be necessary in some areas.

This book could serve as a reference for instructors in teaching physiology as applied to therapeutic procedures rather than as a laboratory text. It is possible that some of the experiments would apply directly to such an applied physiology course. For a general course in physiology and anatomy this guide could prove to be valuable in the laboratory work. The lessons are clearly written and the student should find it easy to follow the instructions for each experiment. The illustrations in each lesson add to the clarity.

Management of Strokes. *By Keith W. Sheldon, M.D. Cloth; price $3.00. Pp. 134; illus. J. B. Lippincott Company, Philadelphia, 1956.*

This book, though brief in description in comparison with other texts, presents a thorough picture of the catastrophic cerebral dysfunctions more frequently called the "stroke."

The author drives home clearly the excellent point that too often the classical diagnosis of "stroke" is made. The term "stroke" in essence is too broad a term. What must be determined is the specific cause of the cerebral dysfunction.

The so-called "stroke" may have been caused by a wide variety of factors. Some differential diagnoses may include: The intracranial vascular occlusions commonly known as the infarcts, thromboses, emboli and venous sinus diseases; intracranial hemorrhages under which classification fall hypertensive cardiovascular diseases, arteriosclerotic vascular diseases, congenital and arteriovenous aneurysms, angiomas, hemorrhagic diathesis and the extradural, subdural, and intracerebral hemorrhages; brain tumors may depict the "stroke" picture; inflammatory lesions which include the bacterial, viral and richettsial agents may result in the same clinical picture as so-called "strokes."

These are only some causative factors in bringing about the typical "stroke" picture in patients.

The author is specific in saying that not all "stroke" patients can be treated the same. For example, he states that in his experience evidence of increased intracranial pressure is a relative contraindication to spinal puncture. Consequently, the physician must proceed cautiously until the causative factor which has promoted the cerebral dysfunction has been established.

The treatment procedure of catastrophic cerebral dysfunctions along with the role of neurology and neurosurgery are discussed briefly but adequately.

In conclusion the author states that it is his hope this book will stimulate other physicians in their management of "cerebral catastrophes."

Possibly the physical therapist may not have to be concerned primarily about the specific diagnosis and medical treatment when treating the "stroke" patient; however, for the therapist who wishes to have a better understanding of the numerous causative factors of so-called "strokes" this little book provides the necessary information and explanation.

Teach Yourself to Relax. *By Josephine L. Rathbone. Ph.D. Cloth; price $4.95. Pp. 216; illus. Prentice-Hall, Inc., Englewood Cliffs, N. J., 1957.*

This book, both in format and in content, appears to be aimed at interesting persons who have never been trained in any form of relaxation to consider relaxation as a means of relieving their discomforts. It does not seem to be a presentation of new ideas on the subject, but rather an effectively written discussion of what is known to all who have studied relaxation.

It emphasizes the fact that tension which has led to chronic fatigue can have either a physical or emotional basis, or both. The book is divided into sections illustrating how the layman can recognize physical and psychological fatigue, and what he can do about it after the physician has verified the causes of his aches and pains.

The book stresses the fact that persons whose work is demanding and whose work by its very nature subjects them to a steady diet of tensions and pressures are the ones who most need to learn the art of relaxation.

For the person who is motivated to learn why and how he must relax, the book is an excellent starting point—written by an authority in the field.

A Primer for Paraplegics and Quadriplegics. *By Seymour S. Bluestone, M.D. and Faculty Members of the Department of Physical Medicine and Rehabilitation, New York University College of Medicine. Paper; price 50 cents. Pp. 38; illus. Institute of Physical Medicine and Rehabilitation, N.Y.U.-Bellevue, New York, 1957.*

This booklet is the first of a series of publications planned by the Institute for patients. It is the result of 10 years' experience and study of the rehabilitation of the paraplegic and quadriplegic patient. The material was prepared by Dr. Seymour S. Bluestone, now Director of New York State Rehabilitation Hospital, with the assistance of the senior faculty members of the Department of Physical Medicine and Rehabilitation of New York University College of Medicine.

A simple clear résumé of the anatomy and physiology related to paraplegia and quadriplegia is given. Living with these disabilities and ways of meeting some of the problems encountered are clearly outlined in the subheadings of: activities of daily living, care of wheel chair, care of braces, the skin, your diet, bladder and kidneys, the bowels, the tilt table, hot weather and cold, and psychologically speaking.

Statements of the opportunities available through the Office of Vocational Rehabilitation of the U.S. Department of Health, Education, and Welfare, and the National Paraplegic Society are included at the end of the publication.

Because of its many practical suggestions this pamphlet is a valuable reference, not only for a patient, but also for the physical therapist working with patients with this type of disability.

Guide to Medical Terminology. *By Wallace and Anne Clark, Medical Editors. Foreword by George Morris Piersol, M.D., Dean, University of Pennsylvania Graduate School of Medicine. Cloth; price $1.50. Pp. 130. F. A. Davis Co., Philadelphia, 1956.*

The introduction of this book states that it is designed to help students understand the language of medicine, and that it is written primarily for medical, premedical, and nursing students. It goes on to say that it will be of value to those studying veterinary medicine, pharmacy, and dentistry, as well as to medical secretaries, sales and advertising personnel of pharmaceutical companies, medical technicians, physical therapists, and medical editors and writers.

The first section, 113 pages, is devoted to prefixes, suffixes, and their combining forms with Latin (L) or Greek (G) derivation indicated. The meaning of the form is given, and is followed by an example of an English word, its meaning and its composition. The second section, 27 pages, lists English words followed by reference to the Latin and Greek forms. The format of presentation is easy to read.

The first section may be of value to a person who wishes to increase his medical vocabulary; the second section may be of value to a student. The first section, in a number of instances, has as examples of English words those not commonly used in recent medical literature, e.g., *auri*lave—"an apparatus for washing out or cleaning the ear," *atelo*podia—"congenitally defective feet." Some examples are only fair, e.g., *asthenocoria*—"sluggish light reflex of the pupil of the eye." Correlation of this form as a suffix in neur*asthenia* would appear to be a better choice since most students are familiar with the word. Many of the forms occur in combination only a few times in the large medical dictionaries, e.g., *ano* (G) meaning up, upper, or upward appears only once in Dorland's large twenty-third edition in the word, *anoopsia*—"a squint in which the eye is turned upward." A suffix, *—aphia* meaning "touch" is not listed in either Dorland's or Gould.

A survey of the forms beginning with "A" was done as a representative sample of the book. Graduate nurses, internes, residents, and specialists were interviewed. They were questioned as follows: (1) Do you know this word? (2) Have you seen it in the literature? (3) Do you use it? (4) Do you think it is a good example? Of the 56 examples given, 31 were considered good because the student would be able to correlate them with his existing vocabulary or they were frequently used, 2 were fair, and 9 were poor. There were 15 forms which occurred in combination from 1 to 14 times only in the large medical dictionaries. It was the consensus that more frequently used forms should have been considered.

In as much as the current trend in medical writing and literature is the use of simple and concise terminology, it is the opinion of the reviewer that this book does not carry out its primary purpose in respect to students. However, it may well be of value to those who wish to enlarge an extensive medical vocabulary, or to those with special interest in the older literature.

The reviews here published have been prepared by competent authorities and do not represent the opinions of the American Physical Therapy Association.

Our Book Reviewers for May

Ruby Decker, Educational Director, School of Physical Therapy, University of Texas Medical Branch, Galveston.

James E. Griffin, Associate in Physical Therapy, University of Pennsylvania, Philadelphia.

Gloria Hirschberger, Physical Therapist, City-County Clinic, Johnstown, Pa.

Roxie Morris, Associate Professor, Physical Therapy Department, University of Southern California, Los Angeles.

Anne Prochazka, Nurse and Physical Therapist, Consultant, Home Care of the Disabled, Visiting Nurse Association, Chicago.

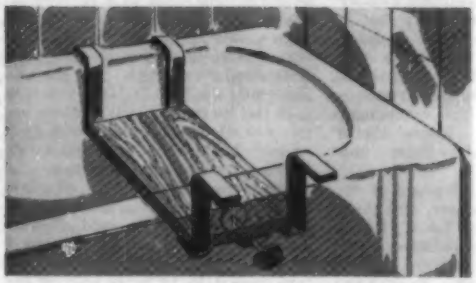
Jessie F. Waddell, Chief, Orthopedic Nursing and Physical Therapy, Michigan Crippled Children Commission, Lansing.

What's New .....

For more information on items write to The Physical Therapy Review, 1790 Broadway, New York 19, N. Y.

New items which may be of interest to physical therapists will be mentioned in these pages each month. The accompanying explanations are made by the manufacturers and have not been investigated by the *Physical Therapy Review.*

50. Safety Bathtub Seat



An adjustable Safety Bathtub Seat, which can even be used in modern built-in tubs, is the latest development in bathroom safety equipment. Made with rugged chrome-plated steel supports, the heavy-duty enameled wood seat is a generous 12 inches wide, and sets down 5 inches below tub level. The new design is strong and safe, as it has corrugated rubber-lined thick steel hanger clamps to prevent marring bathtub porcelain. Underneath, is an adjustable screw clamp which locks the portable seat against bathtub wall in a matter of seconds, avoiding any slippage. This adjustability also makes it possible for this same seat to be used in bathtubs of various widths with either old style or modern tub walls. Self Ease Units, Inc.

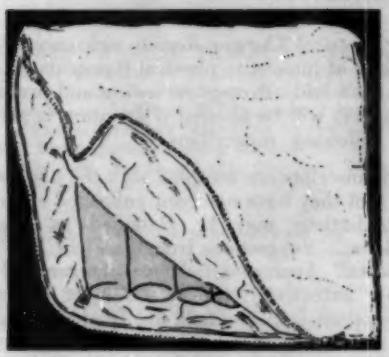
51. Gadgets Magazine

Gadgets Magazine has a low subscription cost, is published quarterly, and contains descriptions of many small items useful to patients and physical therapists. The 30 page Winter Issue, 1958, includes at least a dozen items of use to handicapped persons. Gadgets.

52. Tomac Holding Mitt

Tomac Holding Mitt fits either right or left hand thereby eliminating difficulties of locating proper glove. The washable, easily adjustable Holding Mitt is constructed of soft, comfortable high grade cowhide. Tomac Holding Mitt's open edges are bound with durable, smooth tape double stitched and lock stitched at ends. Non-rusting buckles are double prong non-slip. Rehabilitation Products Division, American Hospital Supply Corporation.

53. Zip-a-Pack



Zip-A-Pack is a convenient cover for moist heat packs. The cover is constructed of five thicknesses of white washable toweling material. Zip-A-Pack.

54. Booklet for Handicapped Mothers

Suggestions for Physically Handicapped Mothers on Clothing for Preschool Children is a 32-page illustrated booklet prepared by Eleanor M. Boettke. Based on studies in the area of Child Care Problems of Physically Handicapped Mothers conducted by the School of Home Economics, University of Connecticut, the investigation was supported in part by a research and demonstration grant from the Office of Vocational Rehabilitation, Department of Health, Education and Welfare, Washington, D. C. In five parts, the booklet presents guides to self-help, growth, comfort, wear and easy care features. Cost of booklet: 1-10 copies, $.50 each; 10-100 copies, $.35 each; 100 or more copies, $.30 each. Orders should include check or prepayment and should be sent to Home Economics Research Center, School of Home Economics, University of Connecticut, Storrs.

Index to Current Literature

(continued from page 340)

PHYSICAL MEDICINE

Extended Relief of Tic Douloureaux by Physical Therapeutic Measures. Harvey E. Billig, Am. J. Surg., 95: 81-86, January 1958

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Submit the original *manuscript* and one carbon copy (keep one carbon copy for your files). All written material should be typed, double-spaced with minimum margins of 1 inch on 8½ x 11 inch opaque white paper. Legends for illustrations, tables, references, and acknowledgments should be placed each on a separate sheet. When citing another author's work, a superscript numeral must appear in the body of the manuscript. The *references* must be accurate and numbered in the order in which they appear in the text. Include the name of each author, title of the article, name of periodical, volume number, inclusive pages, and date.

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STAFF OPENING: at Iowa Methodist Hospital, Des Moines, Iowa. Hospital has 400 beds, including Raymond Blank Memorial Hospital for Children. Construction under way of 120-bed rehabilitation unit. Excellent chance for advancement. In- and outpatient work. Competent professional staff and assistants. Excellent working relationships. Apply Personnel Director.

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OPPORTUNITY for beginning staff and experienced physical therapist interested in career position with opportunities for advancement in field of Physical Rehabilitation, opportunity to participate in educational program if desired. Rehabilitation facilities include physiatrist's supervision, speech and occupational therapy, and clinical psychology. Regular benefits and with increased privileges with longevity. Write to Medical Directors, 9145 South Ashland Ave., Chicago 20, Ill.

IMMEDIATE PLACEMENT for additional qualified staff physical therapists (male or female) for physical medicine and rehabilitation institute serving two hospitals, in largest centrally located industrial center in Illinois. Full time medical supervision, 40-hour, 5-day work week, excellent salary with regular increments. Write: Administrator, Institute of Physical Medicine and Rehabilitation, 619 North Glen Oak Avenue, Peoria, Illinois.

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(continued on next page)

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WANTED: PHYSICAL THERAPIST for children's convalescent home. Good salary and working conditions with annual increment. Five-day, 35-hour week. Completely equipped department. For details write Superintendent, Betty Bacharach Home, Longport, N.J. (Atlantic City).

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